

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN**

NALCO COMPANY LLC, ECOLAB INC.,
HAZELMERE RESEARCH LTD., ECOLAB
USA INC., NALCO HOLDING COMPANY,
NALCO U.S. 2 INC., and MOBOTEC AB,
LLC,

Plaintiffs,

v.

WISCONSIN PUBLIC SERVICE
CORPORATION d/b/a WESTON POWER
PLANT (UNIT 3), and ARBOR FUELS
COMPANY LLC,

Defendants.

WISCONSIN PUBLIC SERVICE
CORPORATION d/b/a WESTON POWER
PLANT (UNIT 3), and ARBOR FUELS
COMPANY LLC,

Counterclaimants,

v.

NALCO COMPANY LLC and HAZELMERE
RESEARCH LTD.,

Counterclaim Defendants.

Civil Action No.: 3:18-CV-279

(Related case caption follows on next page)

**DEFENDANTS' REPLY BRIEF IN FURTHER SUPPORT OF
THEIR MOTIONS FOR SUMMARY JUDGMENT**

NALCO COMPANY LLC, ECOLAB INC.,
HAZELMERE RESEARCH LTD., ECOLAB
USA INC., NALCO HOLDING COMPANY,
NALCO U.S. 2 INC., and MOBOTEC AB,
LLC,

Plaintiffs,

v.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

Defendants.

WISCONSIN POWER AND LIGHT
COMPANY, WISCONSIN PUBLIC SERVICE
CORPORATION, MADISON GAS AND
ELECTRIC COMPANY, d/b/a COLUMBIA
ENERGY CENTER (UNIT 1), and PORTAGE
FUELS COMPANY LLC,

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TABLE OF CONTENTS

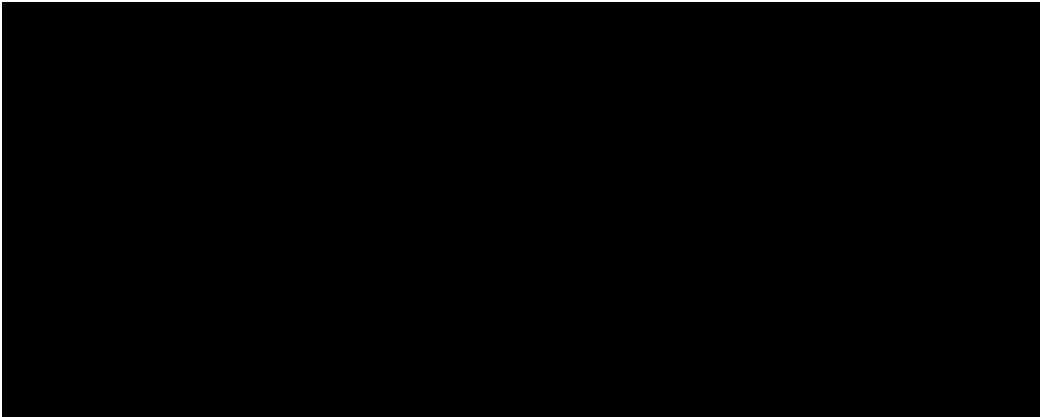
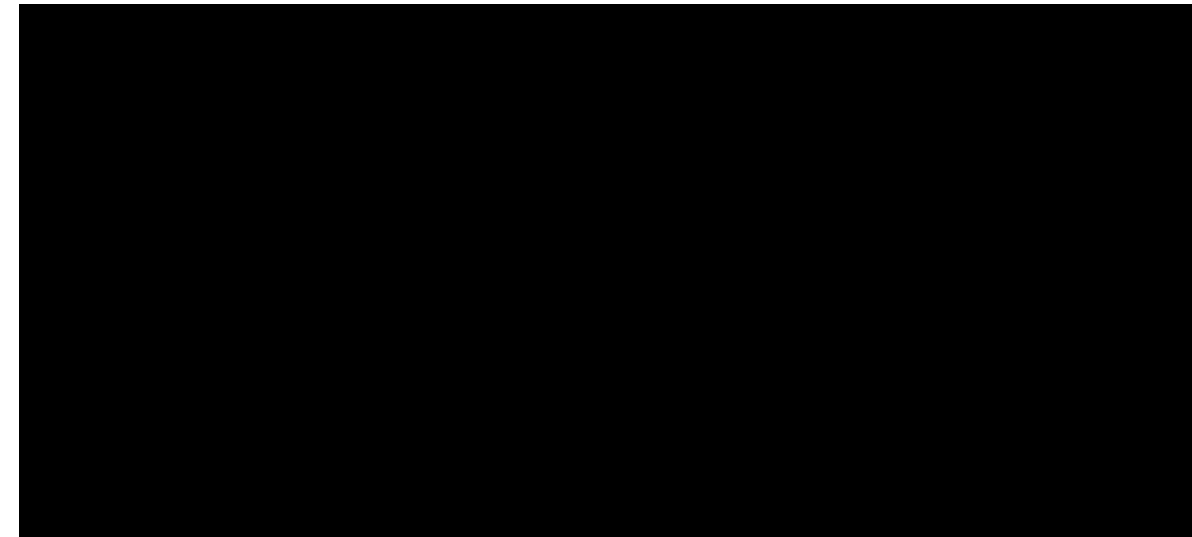
PRELIMINARY STATEMENT	1
ARGUMENT	5
I. The Court Lacks Subject-Matter Jurisdiction Because Nalco Cannot Support Its Assertion of Standing.	5
A. There Is No Dispute That Nalco’s Affiliates Should Be Dismissed.....	5
B. Nalco Has Not Supported Its Assertion of Standing.	5
	
C. Adding Hazelmere as a Plaintiff in the First Amended Complaints Did Not Cure the Jurisdictional Defect.....	15
D. Defendants’ Challenge to Subject-Matter Jurisdiction Is Timely.....	17
II. The Disputed Claim Terms Should Be Given the Constructions Proposed By Defendants.....	19
A. The Federal Circuit Never Decided the Claim Construction Issues Raised Here.	20
B. The Method of Introducing Chemicals By “Injecting into the Flue Gas” Does Not “Include” the Methods of Injecting Into the Combustion Zone or Pretreating Coal.	24
C. Plaintiffs’ Efforts to Disavow the Briefing from the Reexamination Proceedings are Unavailing.	32
D. Plaintiffs Seek to Ignore the PTAB’s Decision on Reexamination.	36
E. Plaintiffs’ Additional Arguments in Support of their Proposed Claim Construction Are Also Without Merit.....	39

TABLE OF CONTENTS

F.	Plaintiffs’ Criticisms of Defendants’ Proposed Claim Constructions Are Unavailing.....	43
III.	Under Defendants’ Proposed Construction of “Flue Gas” or “Injecting Into Flue Gas,” Summary Judgment Of No Infringement Should Be Granted.....	47
IV.	Regardless of the Court’s Claim Constructions, Defendants Are Entitled to Summary Judgment on Various Issues.	51
A.	Arbor and Portage Do Not Directly Infringe.	51
1.	Plaintiffs Fail to Support the Assertion That Arbor and Portage “Direct or Control the Power Plants’ Performance.”.....	52
2.	Plaintiffs Fail to Support the Assertion That “All Defendants” in Each Case “Form a Joint Enterprise.”	57
3.	Plaintiffs’ Joint Infringement Claims Fail as a Matter of Decided Law.	64
B.	Plaintiffs Fail to Support the Assertion That Arbor and Portage Had the State of Mind Needed for Indirect Infringement.	68
C.	Plaintiffs Fail to Support the Assertion That Defendants Have Acted Willfully.	73

TABLE OF CONTENTS



V.	The Asserted Claims Are Invalid.....	103
A.	Under Plaintiffs’ Proposed Claim Constructions, the Asserted Claims Are Directed to Unpatentable Subject Matter.	103
B.	If the Asserted Claims Are Construed to Cover Burning Refined Coal, the Claims Ensnare at Least <i>Julien</i> and Are Therefore Invalid Under Sections 102 and 103 of Title 35.	112
1.	The ’692 Patent Does Not Contain Any Language Limiting the Claims to Coal-Fired Power Plants.	114
2.	Plaintiffs Should Be Judicially Estopped Based on Their Earlier Successful Advocacy Before the PTAB.	118
3.	The <i>Julien</i> Reference Does Not “Squarely Refute” Wilcox’s Opinion.....	119
4.	Dr. Niksa’s Redundant and Late Expert Opinion Does Not Create a Triable Issue of Fact.	120
C.	The Asserted Claims Are Invalid for Failure to Satisfy the Requirements of 35 U.S.C. § 112.	122
1.	The Asserted Claims Are Invalid Because They Lack Written Description and Are Not Enabled With Regard to the Thermolabile Molecular Bromine Precursor.	122
2.	The Asserted Claims Also Fail for Lack of Written Description if the Claims Are Construed to Cover Pre-Treatment and Injection Into the Combustion Zone.	128

TABLE OF CONTENTS

VI. The Court Should Grant Summary Judgment on Defendants’ Counterclaims.	132
CONCLUSION.....	132

TABLE OF FREQUENTLY USED TERMS

Term	Definition
'692 Patent	U.S. Patent No. 6,808,692 to Oehr
'235 Patent	U.S. Patent No. 6,250,235 to Oehr
'282 Patent	U.S. Patent No. 5,817,282 to Oehr
'548 Patent	U.S. Patent No. 8,142,548 to Oehr
'803 Patent	U.S. Patent No. 5,458,803 to Oehr
'805 Patent	U.S. Patent No. 5,645,805 to Oehr
279 Case	<i>Nalco Co. v. Wis. Pub. Serv. Corp.</i> , No. 3:18-cv-279 (W.D. Wis.)
280 Case	<i>Nalco Co. v. Wis. Power & Light Co.</i> , No. 3:18-cv-280 (W.D. Wis.)
AECS	Alliant Energy Corporate Services, Inc.
AJG Coal	Arthur J. Gallagher Coal, Inc.
██████████	██
Arbor	Defendant Arbor Fuels Company, LLC
Asserted Claims	Claims 1, 8–19, and 22–29 of the '692 Patent
CaBr ₂	The chemical symbol for calcium bromide
Chem-Mod	Non-party Chem-Mod LLC
Chem-Mod Case	<i>Nalco Co. v. Chem-Mod LLC</i> , No. 1:14-cv-2510 (N.D. Ill.), filed on April 8, 2014
Chem-Mod Solution	Chem-Mod's method for treating coal, usually comprising the addition of MerSorb and S-Sorb to coal prior to combustion
████████████████████	██
Defendants' construction (or variations of that phrase)	The proposed construction of terms from the '692 Patent offered by Defendants in the parties' Amended Joint Table of Terms Requiring Construction, filed at D.I. # 82.
Gallagher Clean Energy	Gallagher Clean Energy, LLC
██████████	██
Hazelmere	Plaintiff Hazelmere Research Ltd.
Hg	The chemical symbol for mercury
MerControl 7895	The aqueous mixture of calcium bromide and water marketed by Nalco
MerSorb	The aqueous mixture of calcium bromide and water used as part of the Chem-Mod Solution
MGE	Defendant Madison Gas and Electric Company
Nalco	Plaintiff Nalco Company LLC
NMI	Nalco Mobotec, Inc., Nalco's predecessor in interest
██████████	██
NO _x	The chemical symbol for nitrogen oxides

TABLE OF FREQUENTLY USED TERMS

Term	Definition
Plaintiffs' construction (or variations of that phrase)	The proposed construction of terms from the '692 Patent offered by Plaintiffs in the parties' Amended Joint Table of Terms Requiring Construction, filed at D.I. # 82
Portage	Defendant Portage Fuels Company, LLC
POSA	A person of ordinary skill in the relevant art
Refined Coal	Coal treated according to the Chem-Mod Solution
SAC	Plaintiffs' Second Amended Complaint in the 279 and 280 Cases
Section 45	26 U.S.C. § 45
SO _x	The chemical symbol for sulfur oxides
█	█
S-Sorb	A dry powder sorbent used as part of the Chem-Mod Solution
WPS	Defendant Wisconsin Public Service Corporation
WPL	Defendant Wisconsin Power and Light Company
2004 Statute	The American Jobs Creation Act of 2004, PL 108-357, 118 Stat. 1552 (Oct. 22, 2004)
2008 Statute	The Emergency Economic Stabilization Act of 2008, PL 110-343, 122 Stat. 3808 (Oct. 3, 2008)
2010 Statute	The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, PL 111-312, 124 Stat. 3297 (Dec. 17, 2010)

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>AFT Trust v. J&L Fiber Services, Inc.</i> , 674 F.3d 1365 (Fed. Cir. 2012).....	75, 80
<i>Agri-Labs Holding LLC v. Taplogic, LLC</i> , 304 F.Supp. 3d 773 (N.D. Ind. 2018).....	59
<i>Akamai Techs., Inc. v. Limelight Networks, Inc.</i> , 797 F.3d 1020 (Fed. Cir. 2015).....	Passim
<i>Allvoice Developments U.S., LLC v. Microsoft Corp.</i> , 988 F. Supp. 2d 1248 (W.D. Wash. 2013).....	69
<i>Am. Nat. Bank & Tr. Co. of Chicago v. Reg'l Transp. Auth.</i> , 125 F.3d 420 (7th Cir. 1997).....	67
<i>Arbaugh v. Y&H Corp.</i> , 546 U.S. 500 (2006).....	18
<i>Arctic Cat Inc. v. Bombardier Recreational Products Inc.</i> , 876 F.3d 1350 (Fed. Cir. 2017).....	74
<i>Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC</i> , 915 F.3d 743 (Fed. Cir. 2019).....	104
<i>Bayer CropScience AG v. Dow AgroSciences LLC</i> , 2011 WL 6934557 (D. Del. Dec. 30, 2011).....	97
<i>Blaney v. United States</i> , 34 F.3d 509 (7th Cir. 1994).....	67
<i>Boehm v. Zimprich</i> , 2014 WL 6068904 (W.D. Wis. Nov. 13, 2014).....	98
<i>Bos. Sci. Corp. v. Johnson & Johnson</i> , 647 F.3d 1353 (Fed. Cir. 2011).....	127, 129, 130
<i>Carter v. United States</i> , 333 F.3d 791 (7th Cir. 2003).....	67
<i>Castro v. Chicago Hous. Auth.</i> , 360 F.3d 721 (7th Cir. 2004).....	18, 97

<i>Collier v. SP Plus Corp.</i> , 889 F.3d 894 (7th Cir. 2018).....	17
<i>Corbello v. DeVito</i> , 262 F. Supp. 3d 1056 (D. Nev. 2017)	89
<i>Cruise Connections Charter Management I, LP v. Attorney General of Canada</i> , 967 F. Supp. 2d 115 (D.D.C. 2013)	12, 14, 15
<i>Davis v. Federal Election Comm’n</i> , 554 U.S. 724 (2008)	17
<i>Donovan v. Estate of Fitzsimmons</i> , 778 F.2d 298 (7th Cir. 1985).....	66
<i>Eagle Star Ins. Co. v. Bean</i> , 134 F.2d 755 (9th Cir. 1943).....	63
<i>Endo Pharm. Inc. v. Amneal Pharm., LLC</i> , 224 F. Supp. 3d 368 (D. Del. 2016)	89
<i>Ericsson, Inc. v. D-Link Sys., Inc.</i> , 773 F.3d 1201 (Fed. Cir. 2014).....	59
<i>Extreme Networks, Inc. v. Enterasys Networks, Inc.</i> , 2007 WL 5448209 (W.D. Wis. Dec. 31, 2007)	67
<i>First Years, Inc. v. Munchkin, Inc.</i> , 575 F. Supp. 2d 1002 (W.D. Wis. 2008).....	48
<i>Frederic G. Krapf & Son, Inc. v. Gorson</i> , 243 A.2d 713 (Del. 1968).....	10, 11
<i>Gen. Tire & Rubber Co. v. Firestone Tire & Rubber Co.</i> , 349 F. Supp. 345 (N.D. Ohio 1972)	88
<i>Gen. Tire & Rubber Co. v. Firestone Tire & Rubber Co.</i> , 489 F.2d 1105 (6th Cir. 1973).....	89
<i>Genentech, Inc. v. Novo Nordisk A/S</i> , 108 F.3d 1361 (Fed. Cir. 1997).....	127, 128
<i>General Elec. Co. v. Sonosite, Inc.</i> , 568 F. Supp. 2d 983 (W.D. Wis. 2008).....	48, 49, 50

<i>Global-Tech Appliances, Inc. v. SEB S.A.</i> , 563 U.S. 754 (2011)	70, 71
<i>Halo Elecs., Inc. v. Pulse Elecs., Inc.</i> , 136 S. Ct. 1923 (2016)	73, 74, 75
<i>Hogg v. Fraser Shipyards, Inc.</i> , 407 F. Supp. 2d 1027 (W.D. Wis. 2006).....	98
<i>In re Fleming Cos., Inc.</i> , 2007 WL 788921 (D. Del. Mar. 16, 2007).....	10
<i>In re Trans World Airlines, Inc.</i> , 145 F.3d 124 (3d Cir. 1998).....	10
<i>IOENGINE, LLC v. PayPal Holdings, Inc.</i> , 2019 WL 330515 (D. Del. Jan. 25, 2019).....	62
<i>Jacobs v. Nintendo of Am., Inc.</i> , 370 F.3d 1097 (Fed. Cir. 2004).....	86
<i>John Bean Techs. Corp. v. Morris & Assocs., Inc.</i> , 887 F.3d 1322 (Fed. Cir. 2018).....	90, 92
<i>Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.</i> , 383 F.3d 1337 (Fed. Cir. 2004).....	71
<i>Koninklijke Philips N.V. v. Zoll Med. Corp.</i> , 656 Fed. Appx. 504 (Fed. Cir. 2016)	59
<i>Kunzelman v. Thompson</i> , 779 F.2d 1172 (7th Cir. 1986).....	66
<i>Kuryakyn Holdings v. Ciro</i> , 242 F. Supp. 3d 789 (W.D. Wis. 2017).....	97
<i>Lucent Techs., Inc. v. Gateway, Inc.</i> , 580 F.3d 1301 (Fed. Cir. 2009).....	60
<i>Lujan v. Defenders of Wildlife</i> , 504 U.S. 555 (1992)	18
<i>Mahurkar v. C.R. Bard, Inc.</i> , 1993 WL 259446 (N.D. Ill. July 6, 1993).....	89

<i>Matthews v. Wisconsin Energy Corp., Inc.</i> , 642 F.3d 565 (7th Cir. 2011).....	67
<i>Mayo Collaborative Servs. v. Prometheus Labs., Inc.</i> , 566 U.S. 66 (2012)	110
<i>Midland Interiors, Inc. v. Burleigh</i> , 2006 WL 4782237 (Del.Ch. 2006).....	10, 11
<i>Mikkelsen Graphic Eng'g Inc. v. Zund Am., Inc.</i> , 2011 WL 6122377 (E.D. Wis. Dec. 8, 2011).....	73
<i>Miller Brewing Co v. Joseph Schlitz Brewing Co.</i> , 605 F.2d 990 (7th Cir. 1979).....	66
<i>Milwaukee Electric Tool Corp. v. Snap-On Inc.</i> , 288 F. Supp. 3d 872 (E.D. Wis. 2017).....	75
<i>Minemyer v. R-Boc Representatives, Inc.</i> , 2012 WL 2155240 (N.D. Ill. June 13, 2012)	70
<i>Moriarty v. Hills Funeral Home, Ltd.</i> , 93 F. Supp. 2d 910 (N.D. Ill. 2000)	67, 68, 69
<i>Nalco Co. v. Chem-Mod LLC</i> , 883 F.3d 1337 (Fed. Cir. 2018).....	Passim
<i>Optical Air Data Sys., LLC v. L-3 Commc'ns Corp.</i> , 2019 WL 328429 (Del. Super. Ct. Jan. 23, 2019).....	12
<i>Ormco Corp. v. Align Tech., Inc.</i> , 463 F.3d 1299 (Fed. Cir. 2006).....	60
<i>Ortho Pharm. Corp. v. Genetics Inst., Inc.</i> , 52 F.3d 1026 (Fed. Cir. 1995).....	16
<i>Plaintiffs, f'real foods, LLC v. Hamilton Beach Brands, Inc.</i> , 2019 WL 1747554 (D. Del. Apr. 18, 2019)	55, 56
<i>Polara Engr. Inc v. Campbell Co.</i> , 894 F.3d 1339 (Fed. Cir. 2018).....	75
<i>Reagent Chem. & Research, Inc. v. Eurotarget S.R.L.</i> , 2016 WL 8200435 (M.D. Pa. May 23, 2016)	60, 61

<i>Reed v. Columbia St. Mary’s Hosp.</i> , 915 F.3d 473 (7th Cir. 2019).....	18, 97
<i>Rehab. Of Nat’l Heritage Life Ins. Co.</i> , 656 A.D. 252, 260 (Del. Ch. Oct. 17, 1994) (Del. Ch. Oct. 17, 1994)	12
<i>Rockwell Int’l Corp. v. United States</i> , 549 U.S. 457 (2007)	16
<i>Schreiber Foods, Inc. v. Beatrice Cheese, Inc.</i> , 402 F.3d 1198 (Fed. Cir. 2005).....	15, 16
<i>Servicios Especiales Al Comercio Exterior v. Johnson Controls, Inc.</i> , 791 F. Supp. 2d 626 (E.D. Wis. 2011).....	61, 63
<i>Shure, Inc. v. ClearOne, Inc.</i> , No. 17 C, 2018 WL 1371170 (N.D. Ill. Mar. 16, 2018).....	60
<i>Silicon Graphics, Inc. v. ATI Techs. ULC</i> , 2008 WL 4200359 (W.D. Wis. Jan. 30, 2008).....	85
<i>St. Joseph Hosp. v. Wolff</i> , 94 S.W.3d 513 (Tex. 2002).....	61, 62
<i>Suprema, Inc. v. Intl. Trade Commn.</i> , 626 Fed. Appx. 273 (Fed. Cir. 2015)	70
<i>Toshiba Corp. v. Imation Corp.</i> , 990 F. Supp. 2d 882 (W.D. Wis. 2013).....	72, 87
<i>Town Bank v. City Real Est. Dev., LLC</i> , 330 Wis. 2d 340, 793 N.W.2d 476, 2010 WI 134 (2010)	100, 101
<i>Town of Chester, N.Y. v. Laroe Estates, Inc.</i> , 137 S. Ct. 1645 (2017)	17
<i>Travel Sentry, Inc. v. Tropp</i> , 877 F.3d 1370 (Fed. Cir. 2017).....	52, 56, 57
<i>Trustmark Ins. Co. v. Gen. & Cologne Life Re of Am.</i> , 424 F.3d 542 (7th Cir. 2005).....	63
<i>Ultratec, Inc. v. Sorenson Commun., Inc.</i> , 45 F. Supp. 3d 881 (W.D. Wis. 2014).....	70

<i>United States v. Cotton</i> , 535 U.S. 625 (2002)	17
<i>Univ. Of Rochester v. G.D. Searle & Co.</i> , 358 F.3d 916 (Fed. Cir. 2004).....	127
<i>Vanda Pharm. Inc. v. West-Ward Pharm. Int’l Ltd.</i> , 887 F.3d 1117 (Fed. Cir. 2018).....	110
<i>Velocity Pat. LLC v. FCA US LLC</i> , 319 F. Supp. 3d 950 (N.D. Ill. 2018)	75
<i>Venters v. City of Delphi</i> , 123 F.3d 956 (7th Cir. 1997).....	67
<i>Wang Laboratories, Inc. v. Mitsubishi Electronics America, Inc.</i> , 103 F.3d 1571 (Fed. Cir. 1997).....	85
<i>Warsaw Orthopedic, Inc. v. NuVasive, Inc.</i> , 824 F.3d 1344 (Fed. Cir. 2016).....	72
<i>Williams v. Lampe</i> , 399 F.3d 867 (7th Cir. 2005).....	67
<i>WNS Holdings, LLC v. United Parcel Service, Inc.</i> , 2009 WL 2136961 (W.D. Wis. Jul 14, 2009)	98
<i>Yu v. GSM Nation, Inc.</i> , 2018 WL 2272708 (Del Super. Ct. Apr. 24, 2018).....	12
<i>Zenith Elecs. Corp. v. PDI Commun. Sys.</i> , 522 F.3d 1348 (Fed. Cir. 2008).....	88

Statutes

8 Del. C. § 259	12
26 U.S.C. § 45.....	8
35 U.S.C. § 101.....	103, 104, 133, 134
35 U.S.C. § 112.....	Passim
35 U.S.C. § 271(c)	61
35 U.S.C. § 298.....	71

35 U.S.C. §§ 103 and 112	133, 134
PL 108-357, 118 Stat. 1552	8
PL 110-343, 122 Stat. 3808	8
PL 111-312, 124 Stat. 3297	8

Rules

Fed. R. Civ. P. 8(c)(1).....	18
Fed. R. Civ. P. 12(b)(6).....	20, 21, 23
Fed. R. Civ. P. 12(h)(3).....	17
Fed. R. Civ. P. 56 (e)(3).....	129
Rule 8(a) of the Federal Rules of Civil Procedure.....	72

Other Authorities

46 Am.Jur.2d Joint Ventures § 4	61
Restatement (Second) of Torts § 491.....	57

Defendants Wisconsin Power and Light Company (“WPL”), Wisconsin Public Service Corporation (“WPS”), Madison Gas and Electric Company (“MGE”), Arbor Fuels Company LLC (“Arbor”), and Portage Fuels Company LLC (“Portage”) submit this reply memorandum in further support of Defendants’ motions for summary judgment. For the additional reasons set forth below, Defendants’ proposed claim constructions should be adopted and Defendants’ motions for summary judgment should be granted.¹

PRELIMINARY STATEMENT

Defendants’ opening brief explained why the Court should adopt Defendants’ proposed claim constructions, and why Defendants are entitled to summary judgment on multiple independent grounds. Nothing in Plaintiffs’ opposition brief warrants a different result.

Defendants’ proposed claim constructions are grounded in the intrinsic evidence, as required by governing law. That intrinsic evidence includes a PTAB ruling on the meaning of “flue gas” (“flue gas treatment materials may be injected in several locations between the boiler and the stack outlet”), and the patent owner’s own statement defining “flue gas” in the context of the ’692 Patent (“Accordingly, the prior art is quite clear and consistent in its teachings that ‘flue gas’ refers to combustion gases which reside in the ‘flue’—the region of a coal combustor from *above the combustion zone* through the particulate collection system.”) (emphasis added). Defendants’ proposed constructions are built on these statements and holdings.

¹ Unless otherwise noted, citations to the docket refer to Case No. 3:18-CV-279. When specific circumstances require citation to the docket for Case No. 3:18-CV-280, the citation is identified as “Case 280, D.I. # [number].”

Faced with this compelling record, Plaintiffs disavow their earlier statements and distort the PTAB ruling.

First, Plaintiffs suggest that the patent owner and PTAB statements are inconsistent with a different statement by the PTAB, which they repeat throughout their opposing papers: “[t]he claims . . . are silent as to either temperature or location of treatment of flue gas.” But that sentence refers to “treatment” of flue gas, not “injection” of chemicals, and *that* statement is silent on whether the definition of “flue gas” itself has limitations on temperature and location. It does, and those limitations are found in the specification, the patent owner statements, and the PTAB holding, as explained in Defendants’ opening brief.

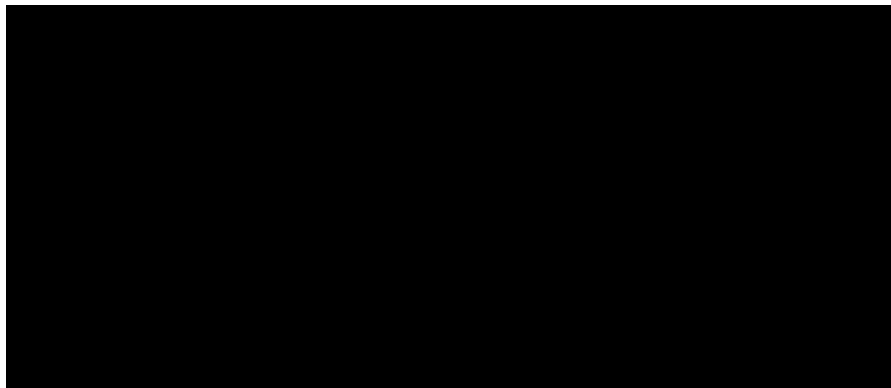
Second, Plaintiffs argue that the claims themselves, and in particular claim 19, contain a definition of “flue gas” that must govern the claim construction. But what Plaintiffs propose as a “definition” is simply the limitation that the subject flue gas is from coal combustion, and not the incineration of trash or the combustion of another fuel. That is not a definition.

Third, Plaintiffs repeatedly insist that Defendants’ proposed constructions were rejected by the Federal Circuit in the Chem-Mod Case, stating “the Federal Circuit *explicitly rejected the exact same position* Defendants take in this case as to ‘flue gas’ and ‘injecting into flue gas.’” *See* D.I. # 135, Pl. Opp. Br. 18 (emphasis added); *see also id.* at 93 (“the Federal Circuit flatly rejected Chem-Mod’s claim construction position, and reversed the district court’s decision on that basis”); 94 (“The Federal Circuit has already considered, and rejected the Defendants’ claim construction position.”). This never happened. The Federal Circuit reversed the district court on the ground that the

case should not have been dismissed *prior to* claim construction, and refused to engage in claim construction on appeal.

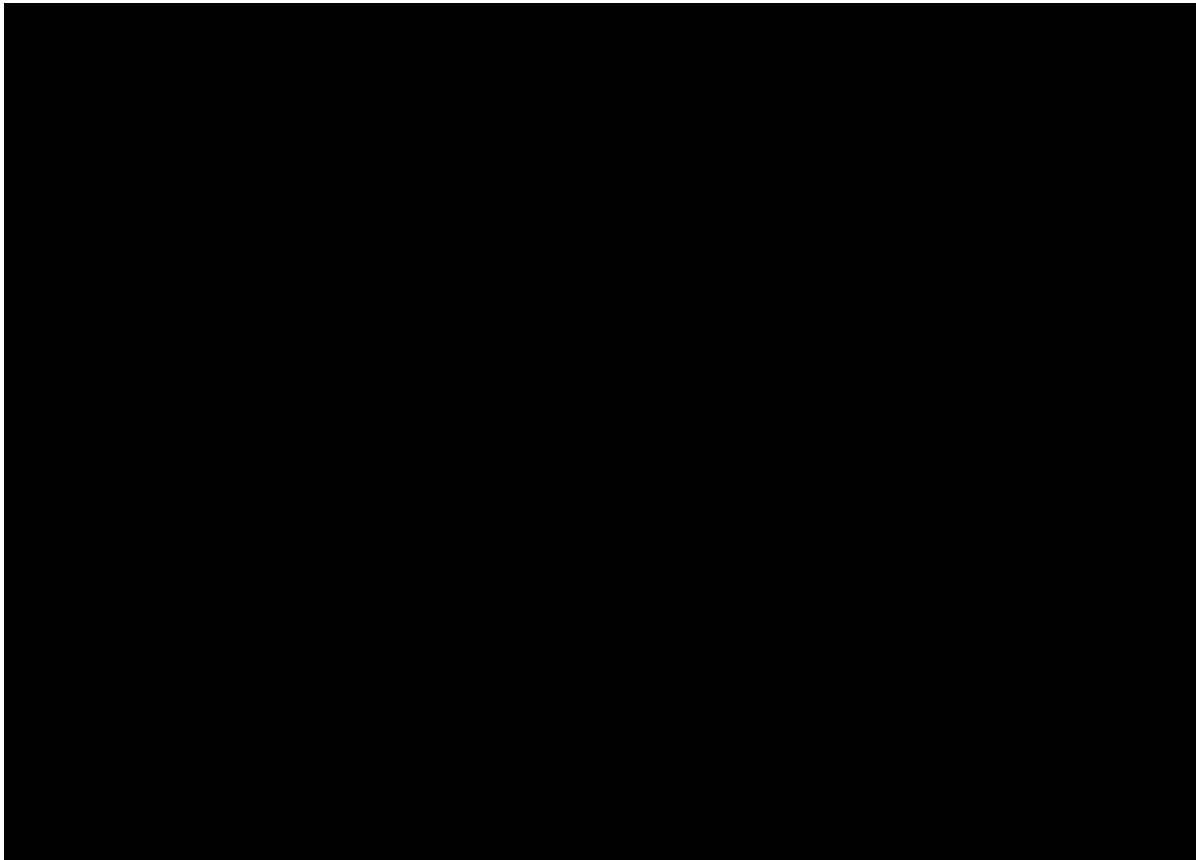
As explained below, Plaintiffs’ other claim construction arguments are similarly without merit.

In addition to advocating for their proposed claim constructions, Defendants’ opening brief established their entitlement to summary judgment on various grounds, including that:



- There is no infringement, because pretreating coal is not covered by the '692 Patent claims, which are directed to “injecting . . . into the flue gas”;
- Regardless of the claim construction, there is no joint direct infringement, indirect infringement, or willful infringement; and
- If the patent claims are permitted to sweep in the use of refined coal, they are invalid under sections 101, 102, 103, and 112 of the patent statute.

Plaintiffs’ response shows that they cannot muster evidence sufficient to create genuine issues of material fact or advance legal arguments that would prevent summary judgment. Indeed, their response papers are deeply at odds with the factual record; rely extensively on unsupported, speculative inferences; and in some cases simply fail to proffer the necessary evidence to bear their burden.



In other instances, Plaintiffs just do not have the evidence they need to resist summary judgment. To oppose a finding that there is no infringement under Defendants' proposed claim constructions, Plaintiffs summon their expert witness's opinion that "it is possible" that some thermolabile molecular bromine precursor enters the flue gas. Defeating summary judgment requires more than opining what "is possible," and Plaintiffs have not overcome Defendants' showing that they are entitled to summary judgment.

For the reasons set forth in Defendants' opening brief in support of their motion for summary judgment, and for the additional reasons below, Defendants respectfully request that the Court construe the claims as they have proposed, and grant summary judgment.

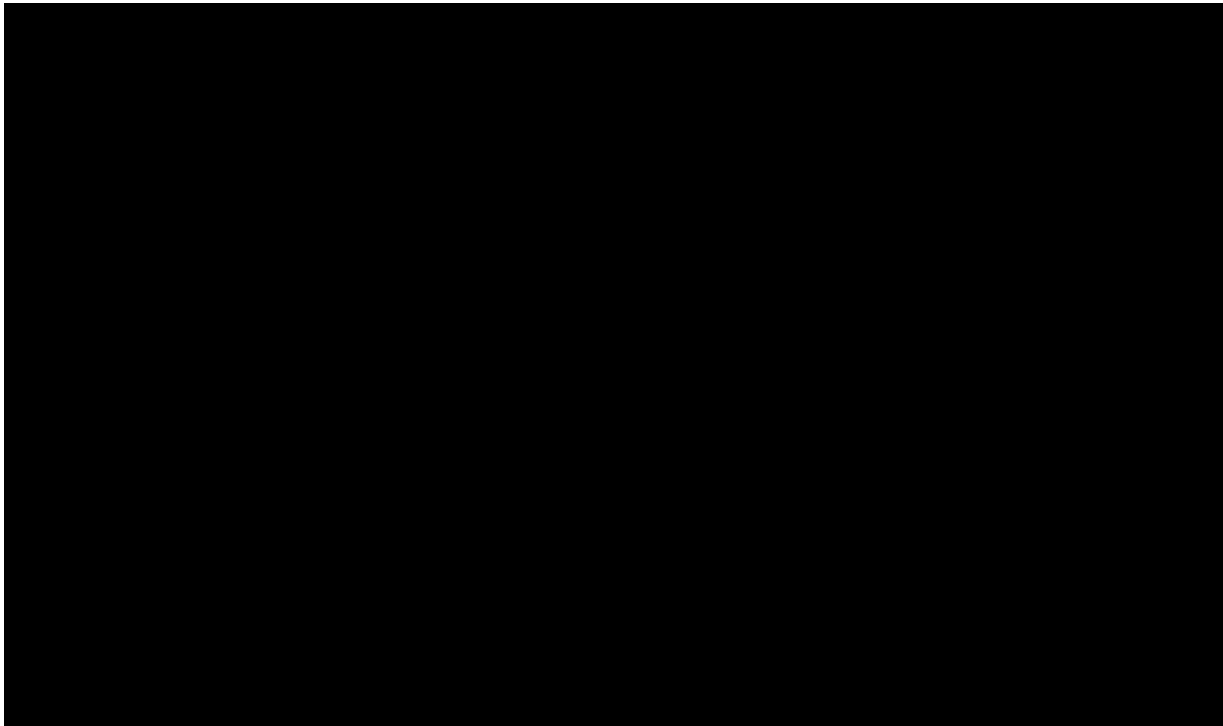
ARGUMENT

I. The Court Lacks Subject-Matter Jurisdiction Because Nalco Cannot Support Its Assertion of Standing.

A. There Is No Dispute That Nalco's Affiliates Should Be Dismissed.

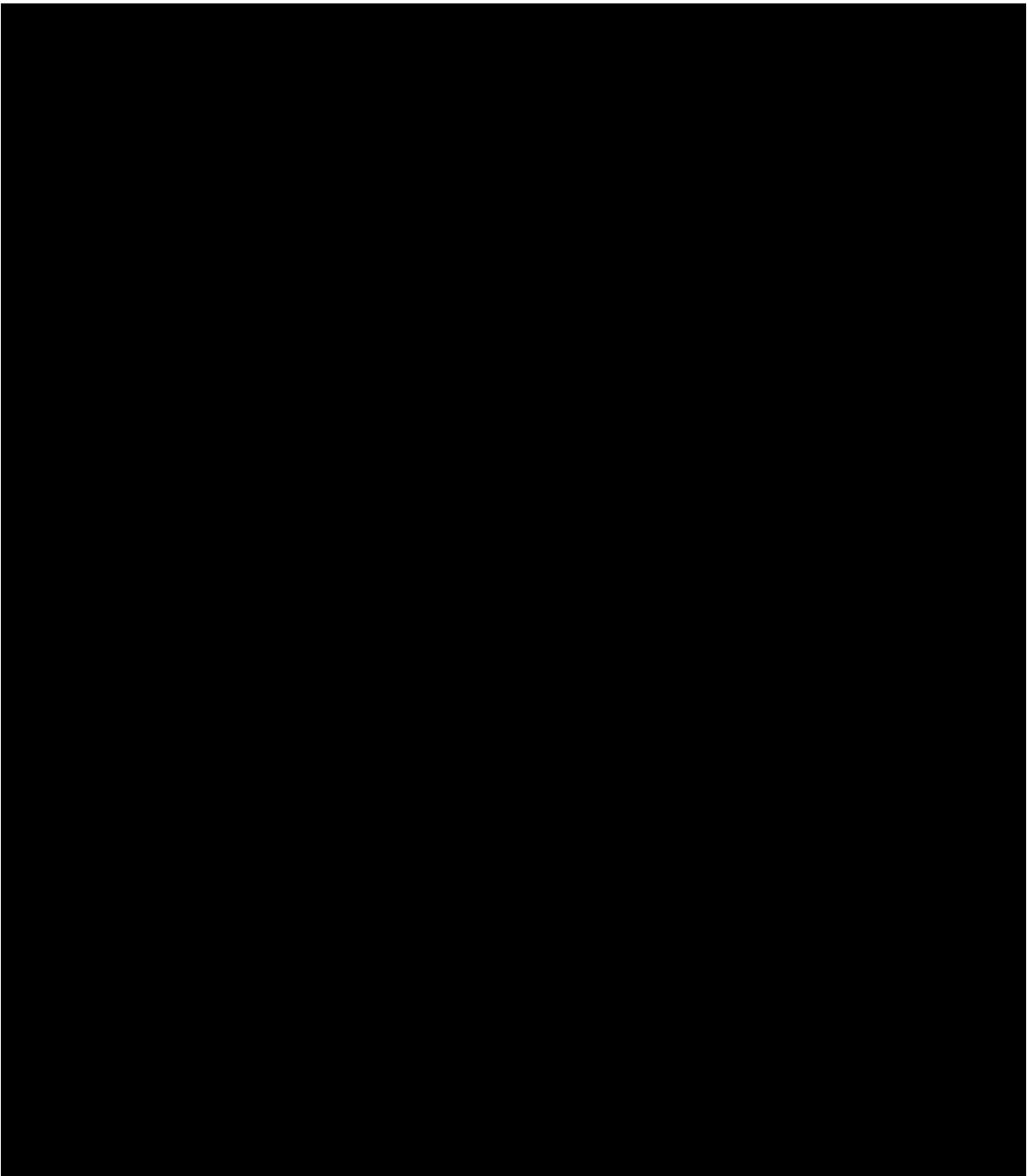
As an initial matter, Plaintiffs once again admit that five Plaintiffs—Ecolab Inc., Mobotec AB, LLC, Nalco Holding Company, Nalco U.S. 2 Inc., and Ecolab USA Inc.—never had any interest in the '692 Patent and do not have standing here. *See* D.I. # 135, Pl. Opp. Br. 6–7; *see also* D.I. # 108, Def. PFF ¶¶ 55–59. These plaintiffs' claims should therefore be dismissed with prejudice. *See* D.I. # 107, Def. Op. Br. 33–34.²

B. Nalco Has Not Supported Its Assertion of Standing.

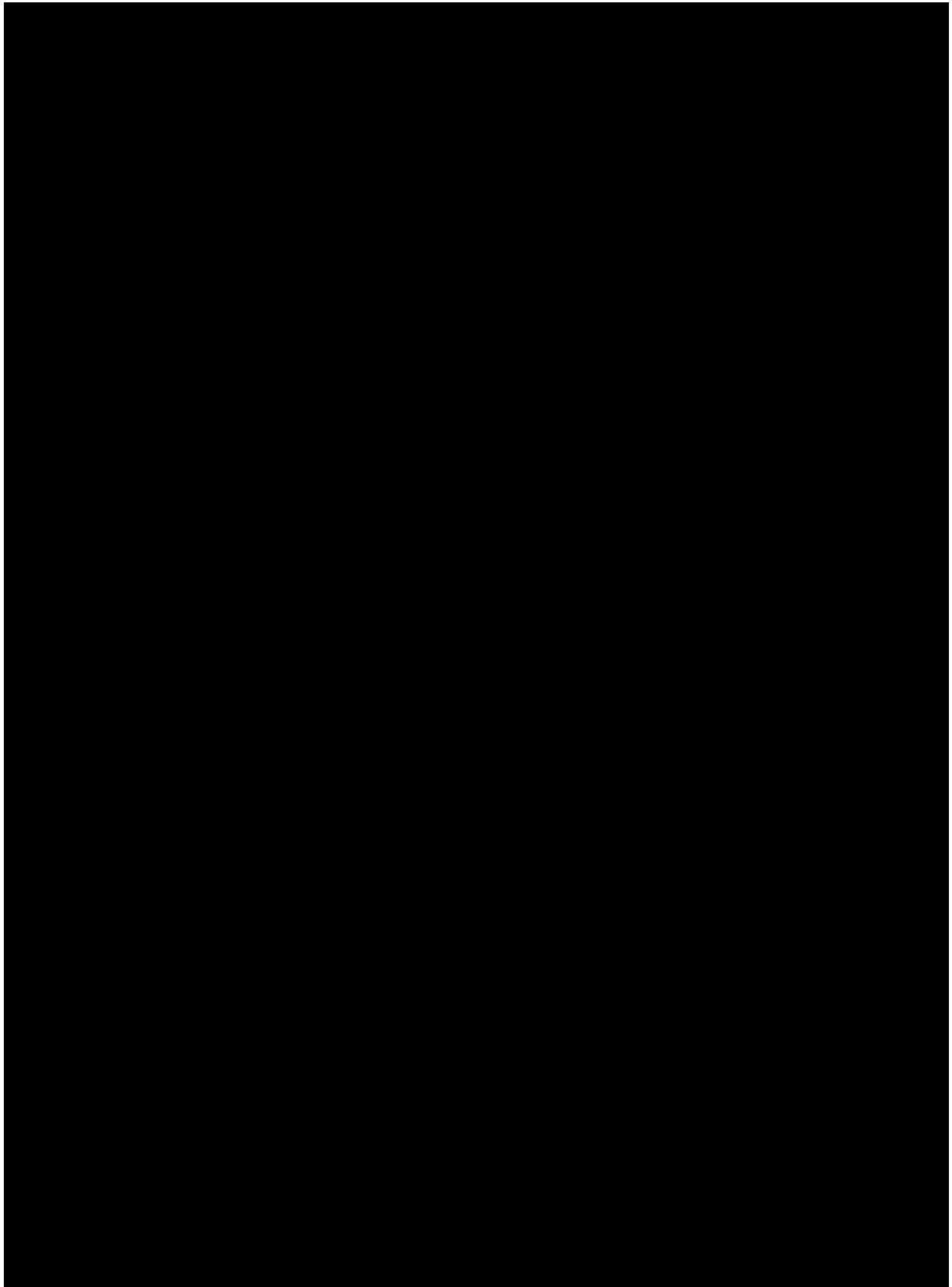


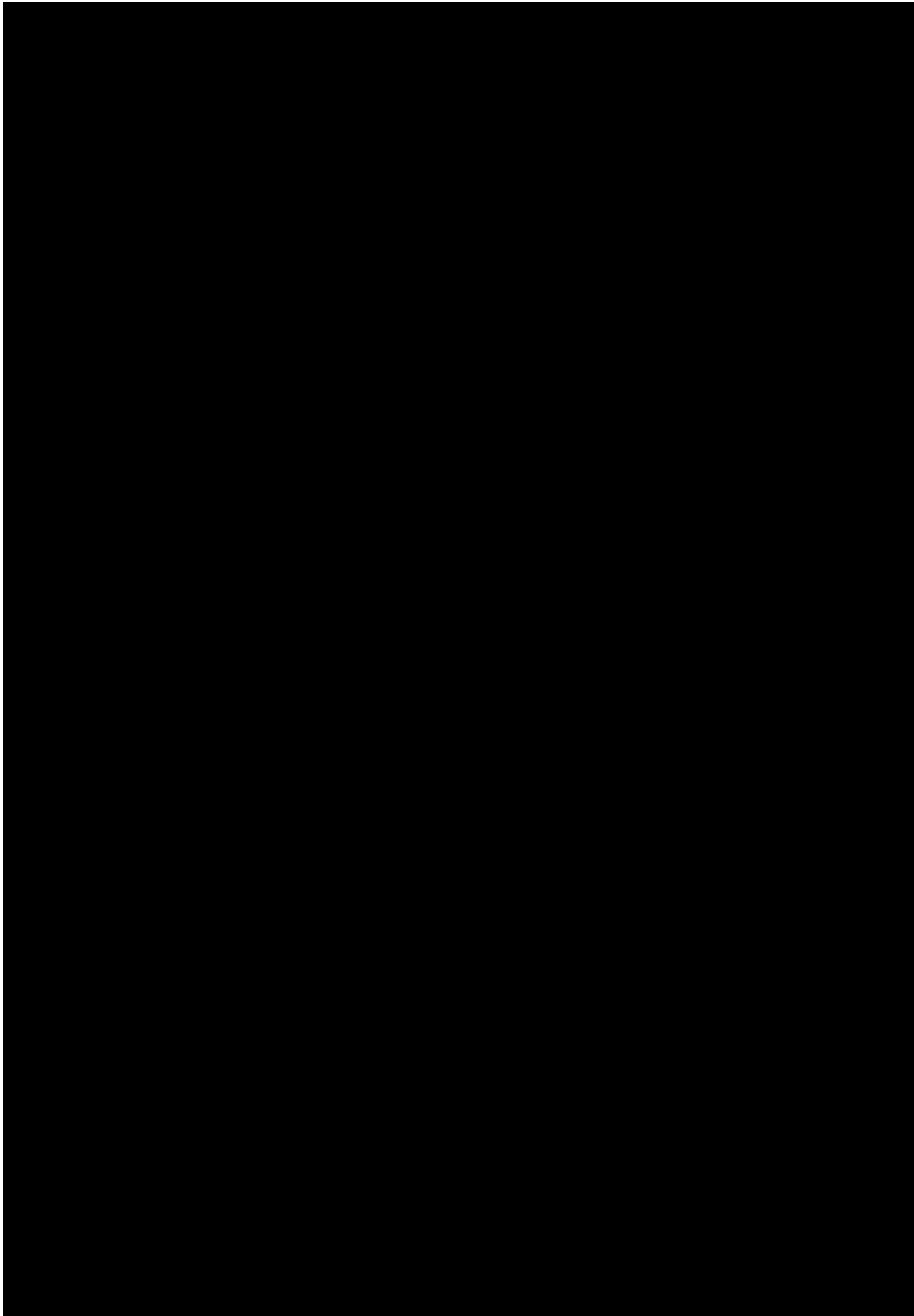
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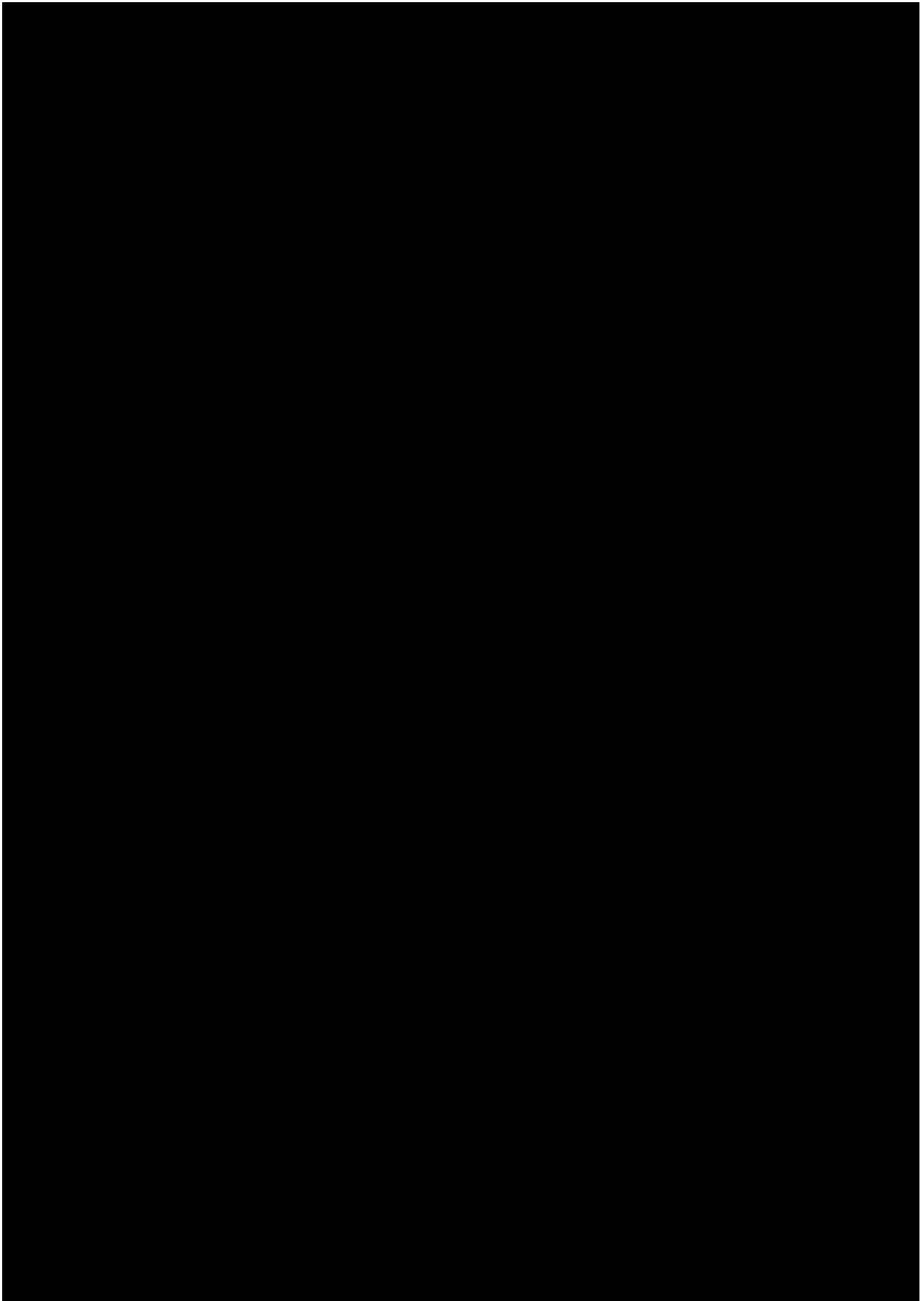


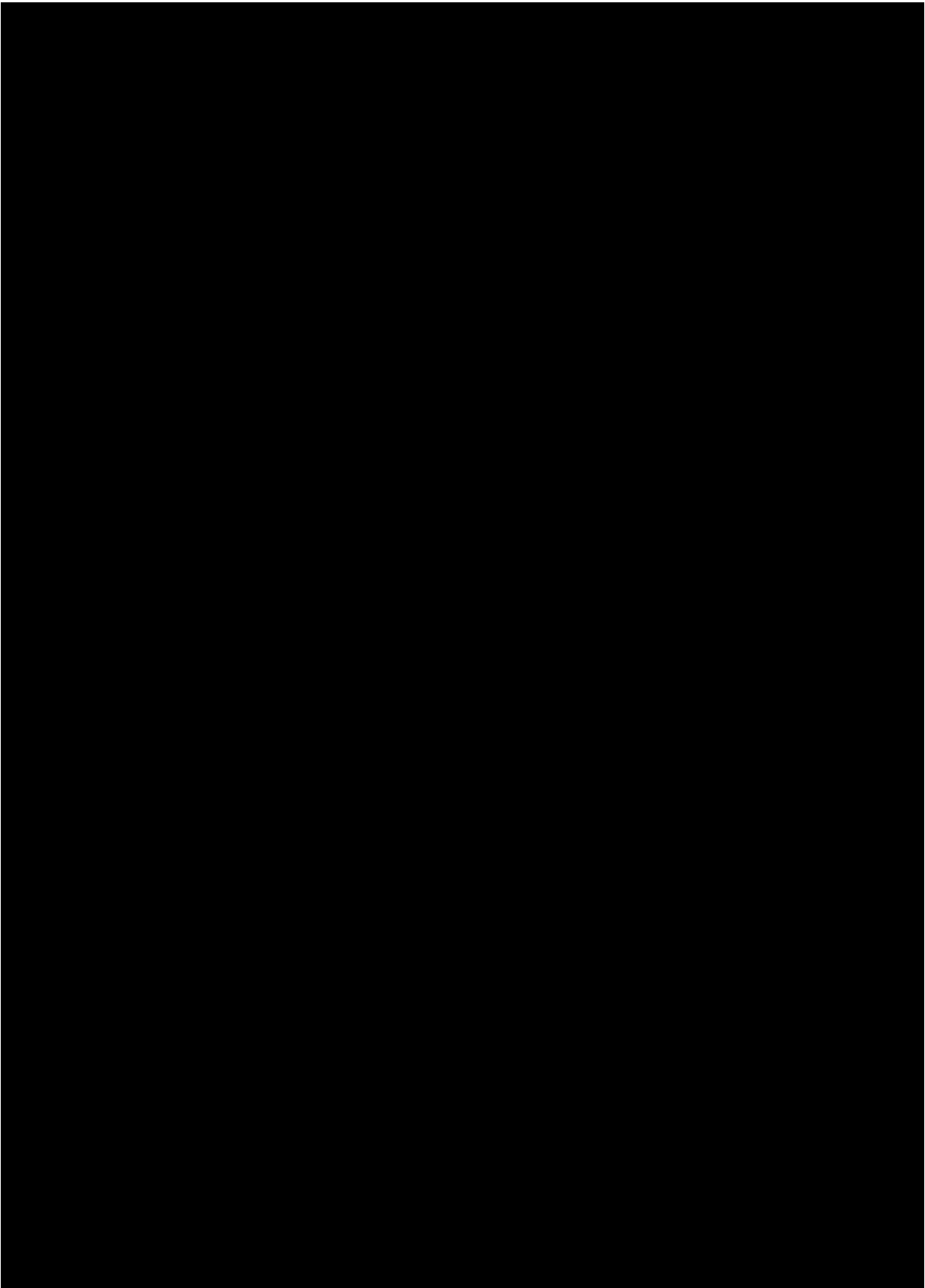


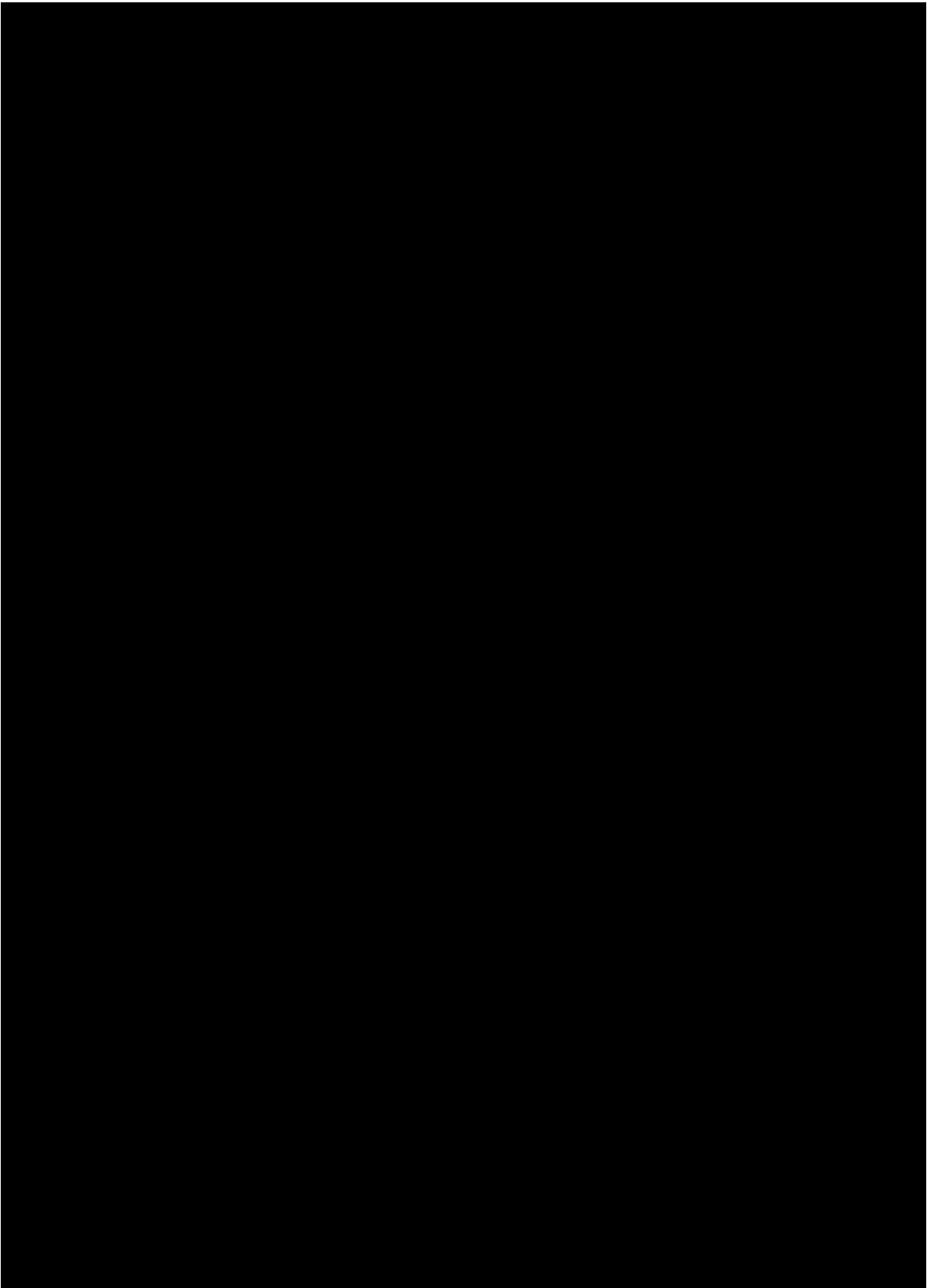
³ Plaintiffs state in a footnote that summary judgment should be denied because Defendants “have not cited any expert testimony supporting their interpretation to aid the Court in applying foreign law to the particular facts of the case.” D.I. # 135, Pl. Opp. Br. 12 n.6. Applying that standard, the Court should enter summary judgment for *Defendants*, because Plaintiffs bear the burden of establishing standing and they have not submitted any expert testimony on the issue either. It is now too late for Plaintiffs to offer an expert witness on the foreign law issues they deem relevant to standing. *See* D.I. # 32, Preliminary Pretrial Conference Order, ¶ 5(a).

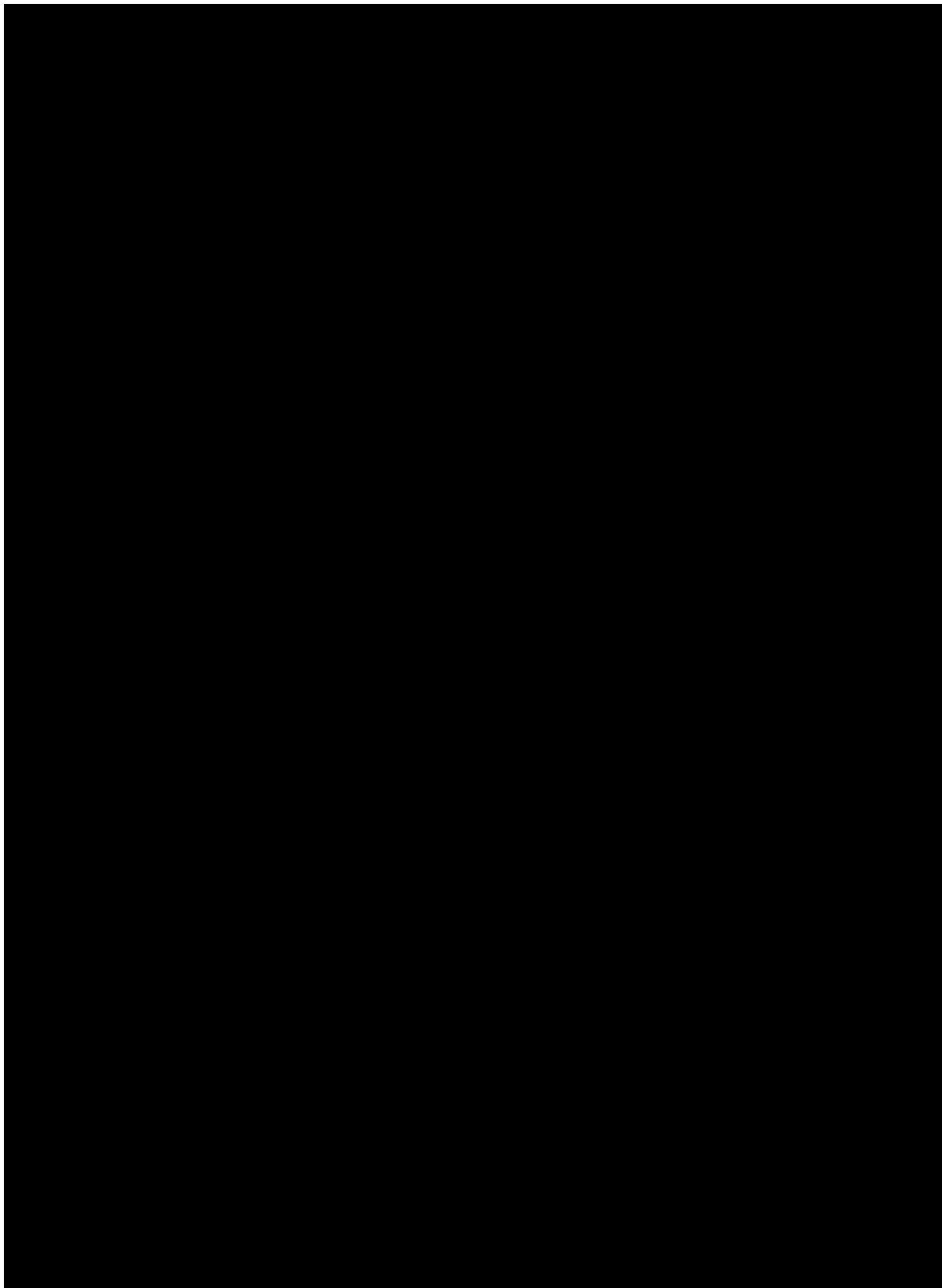


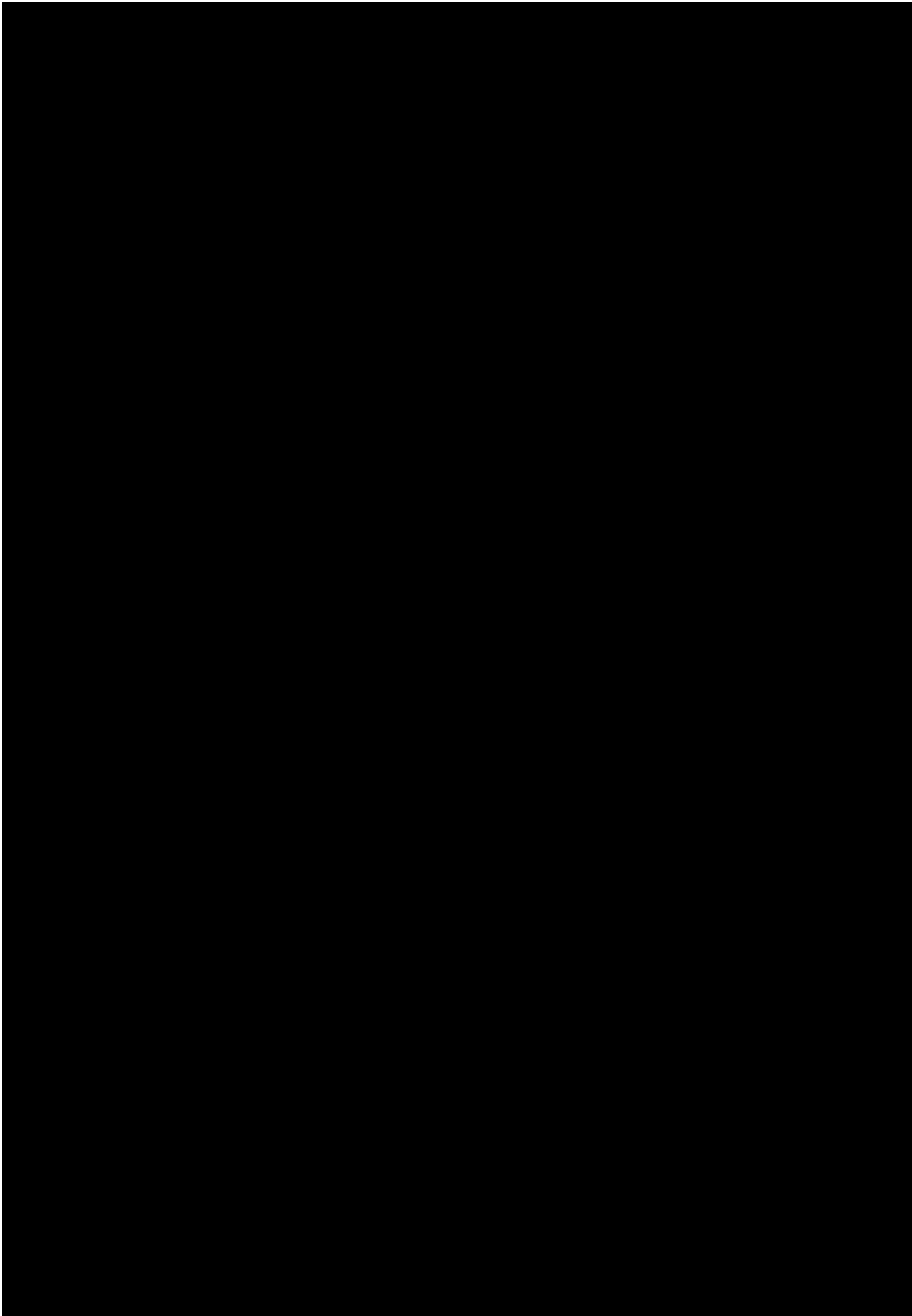


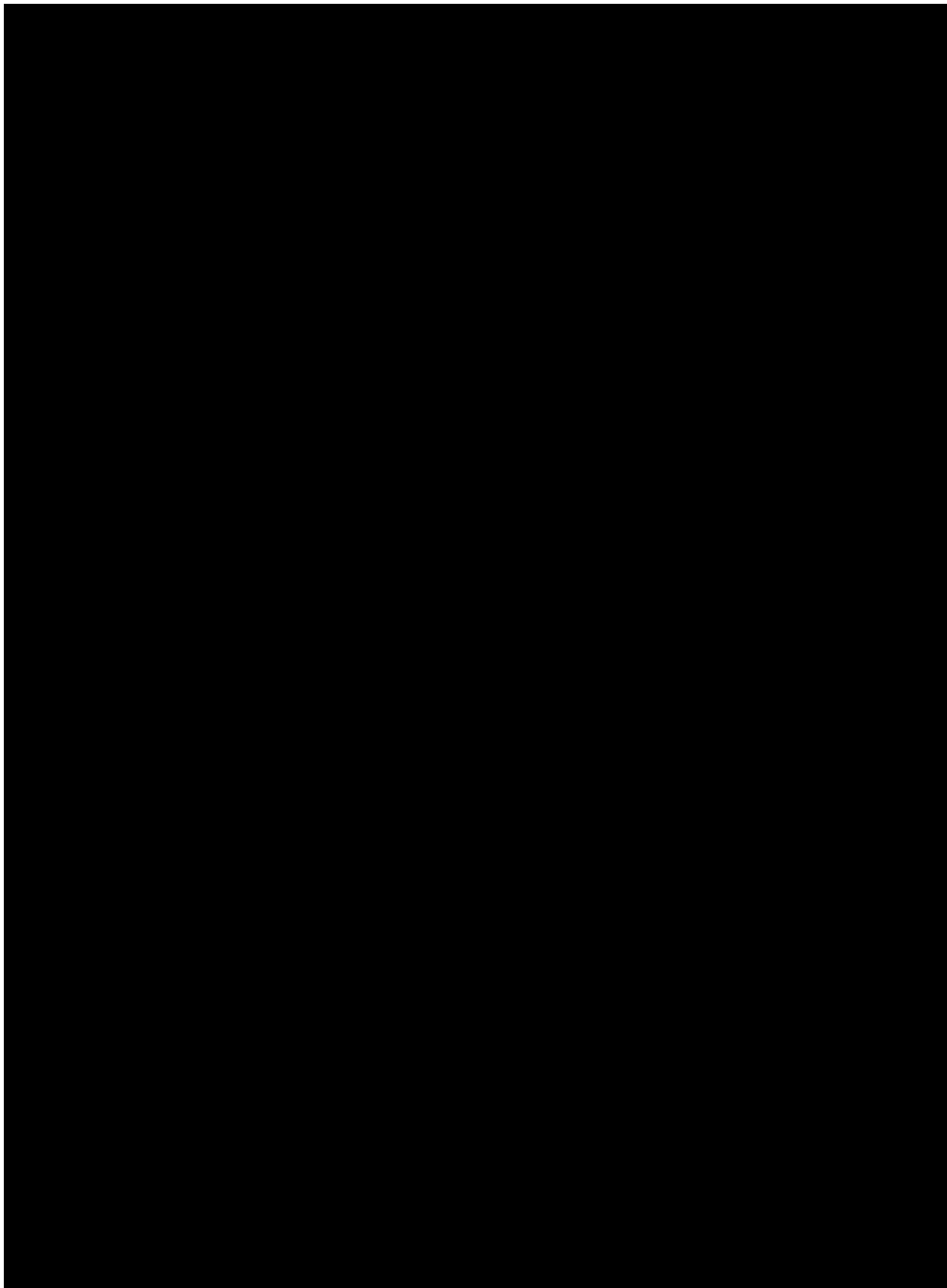


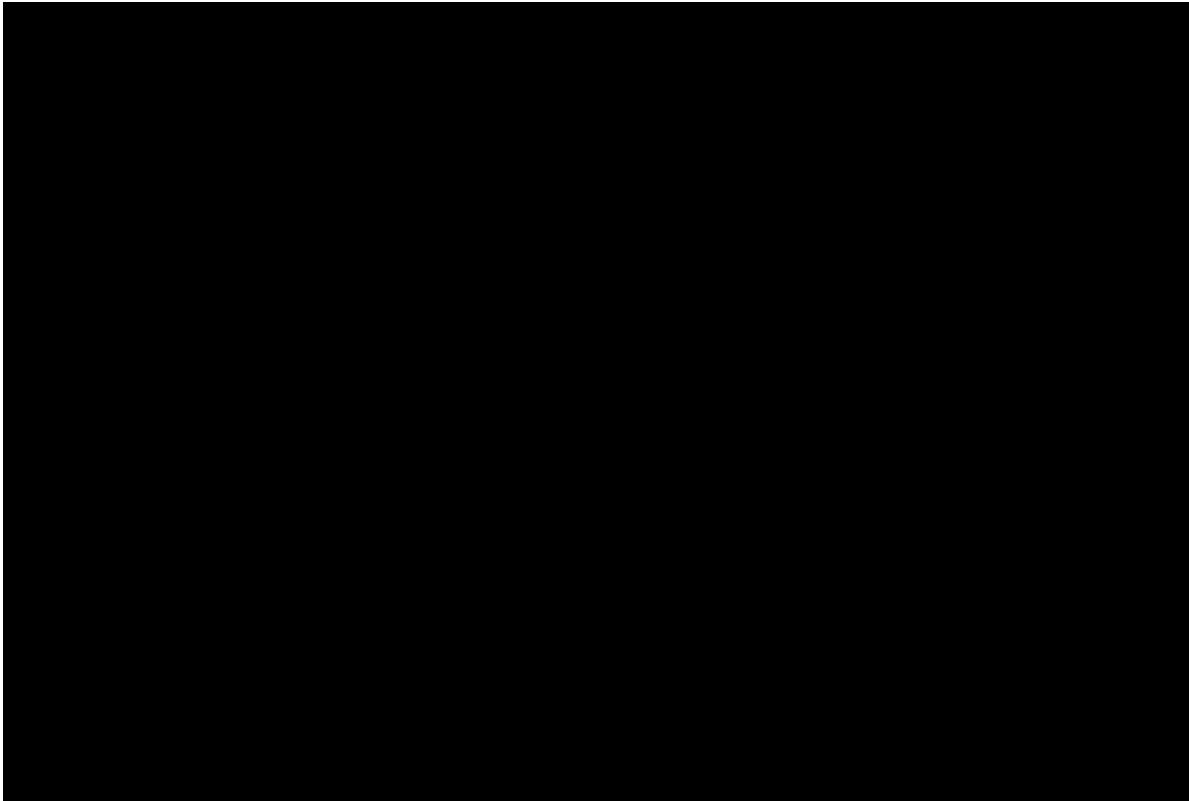












C. Adding Hazelmere as a Plaintiff in the First Amended Complaints Did Not Cure the Jurisdictional Defect.

Plaintiffs assert that these cases should be dismissed because Hazelmere was only added as a Plaintiff in the First Amended Complaint. D.I. #135, Pl. Opp. Br. 16.

Defendants do not dispute that Hazelmere is the assignee of the '692 Patent, but there is also no dispute that Hazelmere was not named as a plaintiff when these cases were filed.

See D.I. # 135, Pl. Opp. Br. 16–17 (admitting that “Hazelmere was added as a plaintiff . . . after Defendants filed their Answer arguing that Hazelmere should be added”). For the reasons explained in Defendants’ opposition to Plaintiffs’ motion for summary judgment, Hazelmere’s late joinder cannot save a complaint filed by Nalco, because Nalco lacked standing to sue in its own name. *See* D.I. # 137, Def. Opp. Br. 88–89; *see also Schreiber Foods, Inc. v. Beatrice Cheese, Inc.*, 402 F.3d 1198, 1203 (Fed. Cir. 2005) (“[I]f the original plaintiff lacked Article III initial standing, the suit must be

dismissed, and the jurisdictional defect cannot be cured by the addition of a party with standing, nor by the subsequent purchase of an interest in the patent in suit.”) (internal citations omitted).

Plaintiffs’ cases are inapposite. *See* D.I. # 135, Pl. Opp. Br. 16–17. *Rockwell Int’l Corp. v. United States*, 549 U.S. 457 (2007), which concerned the interpretation of the False Claims Act, had nothing to do with joinder or patent law. In any event, *Rockwell* makes clear that Article III “subject-matter jurisdiction ‘depends on the state of things at the time of the action brought.’” *Id.* at 1409 (citation omitted). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Plaintiffs also rely on a trio of declaratory judgment cases, which are not subject to the Federal Circuit’s binding precedents on the relevant issue here—the parties required to bring an action for past patent infringement. *See* D.I. # 135, Pl. Opp. Br. 16–17. At most, Plaintiffs’ cases show that whether a cause of action is ripe for adjudication depends on the parties and allegations in the most recent complaint. Who suffers an injury in fact under Article III sufficient to confer constitutional standing is a different question altogether.

Even if Plaintiffs could conjure some basis for ignoring the applicable Supreme Court and Federal Circuit precedents, that would not give Nalco and its affiliates a free pass to participate in these cases. Unlicensed parties, and even “bare licensees,” lack standing to sue, and only *Hazelmere* can maintain these or any re-filed actions. *See Ortho Pharm. Corp. v. Genetics Inst., Inc.*, 52 F.3d 1026, 1031 (Fed. Cir. 1995) (“To have co-plaintiff standing in an infringement suit, a licensee must hold some of the

proprietary sticks from the bundle of patent rights.”); D.I. # 107, Def. Op. Br. 33; *see also* D.I. # 137, Def. Opp. Br. 88.

Thus, the Court should dismiss these cases for lack of subject-matter jurisdiction, even if the eventual joinder of Hazelmere introduced a party with standing. The Supreme Court has made clear that “‘standing is not dispensed in gross.’” *Town of Chester, N.Y. v. Laroe Estates, Inc.*, ___ U.S. ___, 137 S. Ct. 1645, 1650 (2017) (quoting *Davis v. Federal Election Comm’n*, 554 U.S. 724, 734 (2008)). “To the contrary, ‘a plaintiff must demonstrate standing for each claim he seeks to press and for each form of relief that is sought.’” *Town of Chester*, 137 S. Ct. at 1650 (citation omitted [REDACTED]).

[REDACTED] Nalco cannot coast on any theoretical (unpleaded) damages claim Hazelmere might have, and Hazelmere cannot measure damages based on those that Nalco may claim.

D. Defendants’ Challenge to Subject-Matter Jurisdiction Is Timely.

Plaintiffs suggest that the Court can decline to hear Defendants’ challenge to Nalco’s standing. *See* D.I. # 135, Pl. Opp. Br. 17–18. They are wrong. Constitutional standing is required for subject-matter jurisdiction, *Collier v. SP Plus Corp.*, 889 F.3d 894, 896 (7th Cir. 2018), and “subject-matter jurisdiction, because it involves the court’s power to hear a case, can never be forfeited or waived.” *United States v. Cotton*, 535 U.S. 625, 630 (2002); *see also* Fed. R. Civ. P. 12(h)(3) (“Whenever it appears by suggestion of the parties or otherwise that the court lacks jurisdiction of the subject matter, the court shall dismiss the action.”). Because Nalco’s lack of standing destroys the Court’s subject-matter jurisdiction, Plaintiffs cannot object that the issue has been

raised too late for their liking. *See Arbaugh v. Y&H Corp.*, 546 U.S. 500, 506 (2006) (“The objection that a federal court lacks subject-matter jurisdiction . . . may be raised at any stage in the litigation, even after trial and the entry of judgment.”) (internal citation omitted).

Plaintiffs are also wrong to suggest that Defendants needed to plead these arguments as affirmative defenses. *See* D.I. # 135, Pl. Opp. Br. 17. As explained by the cases on which Plaintiffs rely, defenses must be pleaded only if “the defendant bears the burden of proof on the issue under state law or . . . the defense does not controvert the plaintiff’s proof.” *Reed v. Columbia St. Mary’s Hosp.*, 915 F.3d 473, 478 (7th Cir. 2019).⁴ Because standing is “an indispensable part of the plaintiff’s case,” not an affirmative defense, Nalco and its affiliates bore the burden of pleading (and proving) that they each have standing. *See Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992); *see also* Fed. R. Civ. P. 8(c)(1) (listing affirmative defenses and not including “lack of standing” or other subject-matter jurisdiction defects).

For the same reasons, Plaintiffs are wrong to state that “the burden thus was on Defendants to raise any standing issue in a timely manner” and that Defendants unduly delayed raising the issue. D.I. # 135, Pl. Opp. Br. 17–18. Defendants first raised lack of standing and lack of subject matter jurisdiction generally in their Answer to the First Complaints in these actions. D.I. # 49, Answer to SAC ¶¶ 167–170. [REDACTED]

[REDACTED]

[REDACTED] In response, Defendants

⁴ Neither *Reed* nor *Castro v. Chicago Hous. Auth.*, 360 F.3d 721 (7th Cir. 2004), cited by Plaintiffs at D.I. # 135, Pl. Opp. Br. 17, concerned the issues of standing or subject-matter jurisdiction.

developed the basis for this challenge over the course of the January 17, 2019 deposition of Hazelmere's Rule 30(b)(6) representative, Oehr. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Defendants then raised

the constitutional standing issue as part of dispositive motion practice after facts developed further in discovery.⁵

II. The Disputed Claim Terms Should Be Given the Constructions Proposed By Defendants.

The claim construction portion of Plaintiffs' opposition brief largely recapitulates the arguments from their summary judgment motion's opening brief. Defendants address those arguments in detail in their brief in opposition to Plaintiffs' summary judgment motion, and incorporate those responses here. D.I. # 137, Def. Opp. Br. 5–59. Set forth below are additional reply comments directed to specific additional points raised in Plaintiffs' opposition brief.

⁵ Nalco argues in a footnote that it should be compensated for filing an unsupported complaint. *See* D.I. # 135, Pl. Opp. Br. 18 n.8. It would be error to reward Nalco for bringing cases without having standing to do so, and then not realizing that it lacks standing. Moreover, Nalco never sought to correct its Statement of Standing despite the testimony that Oehr provided as Hazelmere's Rule 30(b)(6) witness. In addition, the Rule 30(b)(6) deposition of Nalco was not concluded until April 26, 2019—after dispositive motion practice had begun.

A. The Federal Circuit Never Decided the Claim Construction Issues Raised Here.

Plaintiffs insist that the claim construction issues presented in these cases were previously resolved by the Federal Circuit when it decided Nalco's appeal from the dismissal of the Fourth Amended Complaint in the Chem-Mod Case. D.I. # 135, Pl. Opp. Br. 18, 92–94. Plaintiffs' argument is absolute and unqualified. Plaintiffs state "the Federal Circuit *explicitly rejected the exact same position* Defendants take in this case as to 'flue gas' and 'injecting into flue gas.'" D.I. # 135, Pl. Opp. Br. 18 (emphasis added). Plaintiffs are wrong.

Nalco's appeal in that case was taken from the district court's order dismissing with prejudice, pursuant to Fed. R. Civ. P. 12(b)(6), Nalco's *Fourth* Amended Complaint ("4AC") in the Chem-Mod Case. D.I. # 108, Def. PFF ¶¶ 757–59, 770; *Nalco Co. v. Chem-Mod LLC*, 883 F.3d 1337, 1342 (Fed. Cir. 2018). The 4AC, which contained hundreds of pages of incorporated attachments, represented Nalco's third effort to overcome defects in the infringement theories pleaded in earlier complaints. D.I. # 108, Def. PFF ¶¶ 746, 749–57; *Nalco v. Chem-Mod*, 883 F.3d at 1344 ("In its Second Amended Complaint . . . Nalco attempted to address what it believed was the district court's misunderstanding of what the '692 Patent claimed. . . .Nalco explicitly incorporated infringement contentions into this pleading."), 1345 ("Nalco makes similar allegations in the 4AC, supported by incorporated infringement contentions and various other evidence.").

In reversing portions of the district court's order dismissing the 4AC with prejudice, the Federal Circuit did not construe the patent claims or resolve any disputed facts. It merely held that the 4AC should not have been dismissed under Rule 12(b)(6)

and that the parties’ substantive dispute over the scope of the claims should be resolved after claim construction:

As Nalco explained, these disputes between the parties hinge on where “flue gas” may be located within the power plant and what limitations are appropriate on where “injecting” may occur. ***It is not appropriate to resolve these disputes***, or to determine whether the method claimed in the ’692 Patent should be confined to the preferred embodiment, ***on a Rule 12(b)(6) motion, without the benefit of claim construction.***

Nalco v. Chem-Mod, 883 F.3d at 1350 (emphases added). The Federal Circuit underscored that claim construction disputes should not be resolved on a Rule 12(b)(6) motion:

“Defendants’ arguments boil down to objections to Nalco’s proposed claim construction for “flue gas,” ***a dispute not suitable for resolution on a motion to dismiss.***”

Id. at 1349 (emphasis added). Finally, the Court stated that ***it would not address*** the parties’ various arguments concerning the scope of the claims—including whether the claims did in fact cover injection into the combustion zone:

Defendants ask us to conclude that, under any construction, the term “flue gas” cannot encompass the coal combustion gas in the “combustion zone” of the lower furnace, where Nalco alleges the “coal injectors” are located. *See* Nalco 4AC, at 16. Nalco disputes Defendants’ interpretation of these reexamination statements. ***Resolution of that dispute, even if part of the record that can be considered, is particularly inappropriate in the Rule 12(b)(6) context.***

Id. (emphasis added).

In view of the Federal Circuit’s repeated statements that it was not addressing claim construction issues on review from a decision on a motion to dismiss, Plaintiffs’ assertions here that “the Federal Circuit ***explicitly rejected the exact same position*** Defendants take in this case as to ‘flue gas’ and ‘injecting into flue gas’” are simply

wrong. *See* D.I. # 135, Pl. Opp. Br. 18 (emphasis added); *see also id.* at 93 (“the Federal Circuit flatly rejected Chem-Mod’s claim construction position, and reversed the district court’s decision on that basis”); 94 (“The Federal Circuit has already considered, and rejected the Defendants’ claim construction position.”). Contrary to Plaintiffs’ argument, claim construction is an open issue for this Court to address.

Indeed, misstatements regarding the Chem-Mod Case and the Federal Circuit decision infect Plaintiffs’ opposition brief. For example, Plaintiffs argue that the statement quoted in Defendants’ Opening Brief from the district court’s decision dismissing the *First* Amended Complaint in that case “**was reversed by the Federal Circuit.**” D.I. # 135, Pl. Opp. Br. 18 (emphasis in original) (erroneously stating that the Federal Circuit “revers[ed] the Northern District of Illinois decision relied upon by Defendants in their opening paragraph”). That is a red herring. Defendants quoted the district court to show the evolution of Nalco’s theories of infringement in the prior litigation, and how those evolving theories themselves recognized differences between pre-treatment of coal with additives and what Nalco later seized on as “injection into said flue gas.” D.I. # 107, Def. Op. Br. 27. In any event, the decision by the district court that the *First* Amended Complaint in that case did not state a claim was never addressed by the Federal Circuit, which focused entirely on whether the superseding *Fourth* Amended Complaint stated a claim. *See* D.I. # 108, Def. PFF ¶¶ 770–74; *Nalco v. Chem-Mod*, 883 F.3d at 1357 (“For the foregoing reasons, we reverse the district court’s dismissal of

Nalco’s 4AC, except with respect to the district court’s dismissal of Nalco’s allegations of divided infringement for commercial applications, which we do not disturb.”).⁶

In addition, Plaintiffs attribute to the Federal Circuit a holding that it did not make. Plaintiffs assert that the Federal Circuit “***held that:*** [t]he ’692 Patent explains that the preferred location to inject the halide precursor is in the combustion zone of the furnace [‘692. Pat.] col. 4, l. 66-col.5, l.27.” D.I. # 135, Pl. Opp. Br. at 18–19 (emphasis added, emphasis from brief omitted); *see also id.* at 128 (“the Federal Circuit ***explicitly rejected Defendants’ noninfringement position in holding:*** that ‘the ’692 Patent explains that the preferred location to inject the halide precursor is in the combustion zone of the furnace.’ *Nalco Co.*, 883 F.3d at 1342”).

The Federal Circuit made no such holding, and did not perform fact-finding in its decision regarding the adequacy of allegations in any complaint. Like a district court ruling on a Rule 12(b)(6) motion, an appellate court reviewing a Rule 12(b)(6) dismissal construes the allegations of the complaint in the light most favorable to the Plaintiffs. What Plaintiffs call a “holding” is nothing more than the Federal Circuit’s recitation of allegations taken as true. The quotation in Plaintiffs’ Opposition Brief is from the introductory section of the Federal Circuit’s decision entitled “Background: the Technology.” *Nalco v. Chem-Mod*, 883 F.3d at 1342. It presents the pleaded allegations,

⁶ Plaintiffs assert that “Defendants remarkably fail to mention in their Brief, or even in the associated PFF (D.I. # 108, Def. PFF ¶ 477 [sic 747]), **that this decision was reversed by the Federal Circuit.**” D.I. # 135, Pl. Opp. Br. 18 (emphasis in original). As explained above, (i) the quoted decision, which concerned the adequacy of the ***First*** Amended Complaint, was never addressed on appeal; and (ii) Defendants recited the procedural history of the Chem-Mod Case in detail *supra* page 3 and again at pages 26–28 of Defendants’ Opening Brief, discussing the Federal Circuit decision and result there and elsewhere. D.I. # 107, Def. Op. Br. 26–28, 37. Notably, Plaintiffs do not dispute Defendants’ PFF ¶ 747, describing the district court’s discussion of the ’692 Patent. D.I. # 136, Pl. Resp. to Def. PFF ¶ 747.

including the teachings of the attached patent, in the light most favorable to the plaintiffs in that case.

Moreover, the portion of the '692 Patent cited for that so-called “holding” refers only to regions in a plant that Plaintiffs concede are *not* part of the combustion zone, such as the “*between economizer inlets and [other air quality control systems]*” (5:1–2) and “post superheater coal combustor flue gas zones” (5:24–25), and citing temperatures of 127°C – 527°C (5:15, 5:24), which Plaintiffs allege are far cooler than, and well *downstream* of, the combustion zone. D.I. # 103, Def. PFF ¶¶ 209; D.I. # 102, Pl. Op. Br. 29–30. Indeed, the only “preferred” sites for injection identified in the '692 Patent are “after the superheater section” and in the “economizer/ESP . . . of the combustor”—which Plaintiffs themselves acknowledge are not located in the combustion zone. D.I. # 136, Pl. Resp. to Def. PFF ¶ 135. In short, the sentence from the Federal Circuit decision that Plaintiffs cite and emphasize repeatedly as an appellate “holding,” is (i) not a holding; (ii) contradicted by the sentence in the patent that it cites; (iii) contradicted by the plain text of the patent itself; and (iv) contradicted by, and inconsistent with, Plaintiffs’ arguments in this case—and, frankly, known by Plaintiffs to be incorrect.

B. The Method of Introducing Chemicals By “Injecting into the Flue Gas” Does Not “Include” the Methods of Injecting Into the Combustion Zone or Pretreating Coal.

Acknowledging as they must that POSAs recognized three distinct methods for introducing chemicals into coal-fired plants—pretreating coal, injecting chemicals into the combustion zone, and injecting them into the flue gas—Plaintiffs suggest that as used in the '692 Patent, the third of these terms is actually a catch-all phrase that encompasses

all three methods. D.I. # 135, Pl. Op. Br. 77–79. It is not. *See* D.I. # 108, Def. PFF ¶ 160.

First, as explained in Defendants’ opening and opposition briefs, the ’692 Patent Specification teaches that “flue gas” in coal-fired power plants has certain characteristics—including a temperature range in which the chemical reaction the patent purports to teach a POSA how to perform is thermodynamically favored. D.I. # 107, Def. Op. Br. 45–47; D.I. # 137, Def. Opp. Br. 15–17. That teaching instructs a POSA that when the ’692 Patent uses the term “flue gas,” it means the gas in regions where the indicated chemical reactions are thermodynamically favored. D.I. # 108, Def. PFF ¶ 194. Accordingly, “injecting into the flue gas” would ***not*** include pre-treatment of coal or injecting chemicals into the combustion zone, because “flue gas” as used in the ’692 Patent does not encompass those hotter regions, where the reaction is not thermodynamically favored. D.I. # 108, Def. PFF ¶ 195; D.I. # 107, Def. Op. Br. 46–47.

Second, Oehr did not use the term “injecting into flue gas” as an umbrella term for all three methods of introducing chemicals. To the contrary, when he uses the term “injecting into the flue gas,” it does not cover injecting into the combustion zone or pretreatment, as Plaintiffs suggest. For example, Plaintiffs contend that Oehr used the term broadly in his ’282 Patent, which issued in 1998. *See* D.I. # 135, Pl. Opp. Br. 90–91. But the ’282 Patent described that claimed invention by distinguishing “injecting . . . into the flue gas” from the other methods of introducing chemicals:

This invention relates to a method of reducing acid nitrogen oxides from combustion flue gas by injecting an additive directly into the combustor, combustion zone ***or*** into the flue gas to reduce said nitrogen oxides.

D.I. # 108, Def. PFF ¶ 392 (D.I. # 90-52, Mark Decl. (Apr. 16, 2019) Ex. 52, '282 Patent at 1:8–11 (emphasis added).

Other statements in that patent are consistent:

Preferably the additive is incorporated into the fuel **but** the additive containing the thermolabile compound may be injected into **either** the combustion zone **or** the flue.

D.I. # 108, Def. PFF ¶¶ 390–91; D.I. # 90-52, Mark Decl. (Apr. 16, 2019) Ex. 52, '282 Patent, at 3:19-21 (emphases added).

Likewise, Oehr's '235 Patent refers repeatedly to “treating fossil fuel, especially coal or char,” D.I. # 108, Def. PFF ¶ 370; and “inject[ing] [the additive] into the combustion zone” (*id.*; D.I. # 90-48, Mark Decl. (Apr. 16, 2019) Ex. 45, '235 Patent, at 14:50), but never refers to either of those as “injecting into the flue gas.” Similarly, in his '805 Patent, Oehr states:

Preferably the above mentioned additive is incorporated into the fuel **but** the additive containing the thermolabile compound may be injected into **either** the combustion zone **or** the flue.

D.I. # 108, Def. PFF ¶ 409 (D.I. # 90-50, Mark Decl. (Apr. 16, 2019) Ex. 50, '805 Patent, at 5:46–50 (emphasis added)).

Plaintiffs seize on the fact that some of the foregoing passages reference “inject[ing] into . . . the flue” rather than “injecting into the flue gas.” D.I. # 135, Pl. Opp. Br. 83–85. But in each instance the quoted language is clear that pretreatment and “injecting” into the combustion zone are distinct from each other and distinct from what is referred to as “injecting into the flue.” Furthermore, the term “injecting into the flue” is coextensive with “injecting into the flue gas,” because the '805 Patent uses the term

“flue gas” to refer specifically to the gas in the “flue,” and not the gas in the “combustion zone,” as the following excerpts make clear:

The . . . liquor . . . may be *injected directly into the flue, subsequent to the combustion The flue gas* must be hot enough to . . . (D.I. # 108, Def. PFF ¶¶ 408–09; D.I. # 90-50, Mark Decl. (Apr. 16, 2019) Ex. 50, ’805 Patent, at 7:54-58).

The . . . liquor . . . may be *injected directly into the combustion zone The combustion zone* must be hot enough to . . . (D.I. # 108, Def. PFF ¶¶ 408–09; D.I. # 90-50, Mark Decl. (Apr. 16, 2019) Ex. 50, ’805 Patent, at 7:65-67).

The . . . liquor . . . may be *injected directly into the combustion zone The combustion zone* must be hot enough to . . . (D.I. # 108, Def. PFF ¶¶ 408–09; D.I. # 90-50, Mark Decl. (Apr. 16, 2019) Ex. 50, ’805 Patent, at 8:7-10).

The . . . liquor . . . may be *injected directly into the flue, subsequent to the combustion The flue gas* must be hot enough to . . . (D.I. # 108, Def. PFF ¶¶ 408–09; D.I. # 90-50, Mark Decl. (Apr. 16, 2019) Ex. 50, ’805 Patent, at 8:18-20).

Oehr’s usage in the ’805 Patent clearly distinguishes between “injecting into the flue,” which is described as containing “flue gas,” and “injecting into the combustion zone,” which is described as “the combustion zone,” with no reference to “flue gas.” D.I. # 108, Def. PFF ¶ 409. Those statements are *not* consistent with a vocabulary that regards “injecting into the flue gas” as encompassing injecting into the combustion zone and/or pretreating the fuel. In short, Oehr did not use the term “injecting into the flue gas” as an umbrella term to include the other two methods of introducing chemicals.

Third, Plaintiffs’ effort to distinguish Oehr’s ’235 Patent—which is cited in the ’692 Patent—misses the mark. Plaintiffs correctly underscore that the technology disclosed in the ’235 Patent was that certain materials could be mixed with the fuel or injected into the combustion zone to improve fossil fuel combustion. D.I. # 135, Pl. Opp. Br. 83–84. Notably, those methods are separately taught; under Plaintiffs’ theory, in

which getting materials into the system is “injecting into flue gas” regardless of how they enter the system, Oehr would not have focused such attention on the two distinct methods, but rather collapsed them into “injecting into the combustion zone” or “injecting into the flue gas in the combustion zone”—since pretreating the fuel would simply be one alternate means of getting the material into what Plaintiffs would call the combustion zone flue gas. D.I. # 107, Def. Op. Br. 118–19, D.I. # 108, Def. PFF ¶¶ 386–87.

That the ’235 Patent distinguishes between the two methods is entirely consistent with a POSA’s expectation that a patent would teach which of the three methods may be used to introduce a chemical. *Id.* Oehr’s delineation of the two methods in his ’235 Patent, rather than collapsing them into one umbrella term, comports with that expectation.

Fourth, conflating the three methods under the rubric of “injecting into flue gas” ignores the claim language of the ’692 Patent, which uses three distinct verbs directed at “flue gas”: “treating” flue gas, “injecting into” flue gas, and “providing in” flue gas. D.I. # 108, Def. PFF ¶¶ 170, 175. “Treating” describes an outcome or objective of the claimed method. D.I. # 135, Pl. Opp. Br. 170. “Injecting” and “providing” describe ways that an additive may get into a combustion system. *See* D.I. # 135, Pl. Opp. Br. 80–81. It strains the use of language to suggest that the verb “injecting”—which is used to teach what specifically the chemical additive is introduced “into”—would be the one used to cover all three methods of introducing chemicals, particularly when (i) “injecting into flue gas” is already a term used to reference a particular introduction method known

to POSAs, D.I. # 107, Def. Op. Br. 52–53; and (ii) the three different verbs are used in reference to the term “flue gas, D.I. # 108, Def. PFF ¶ 170.”⁷

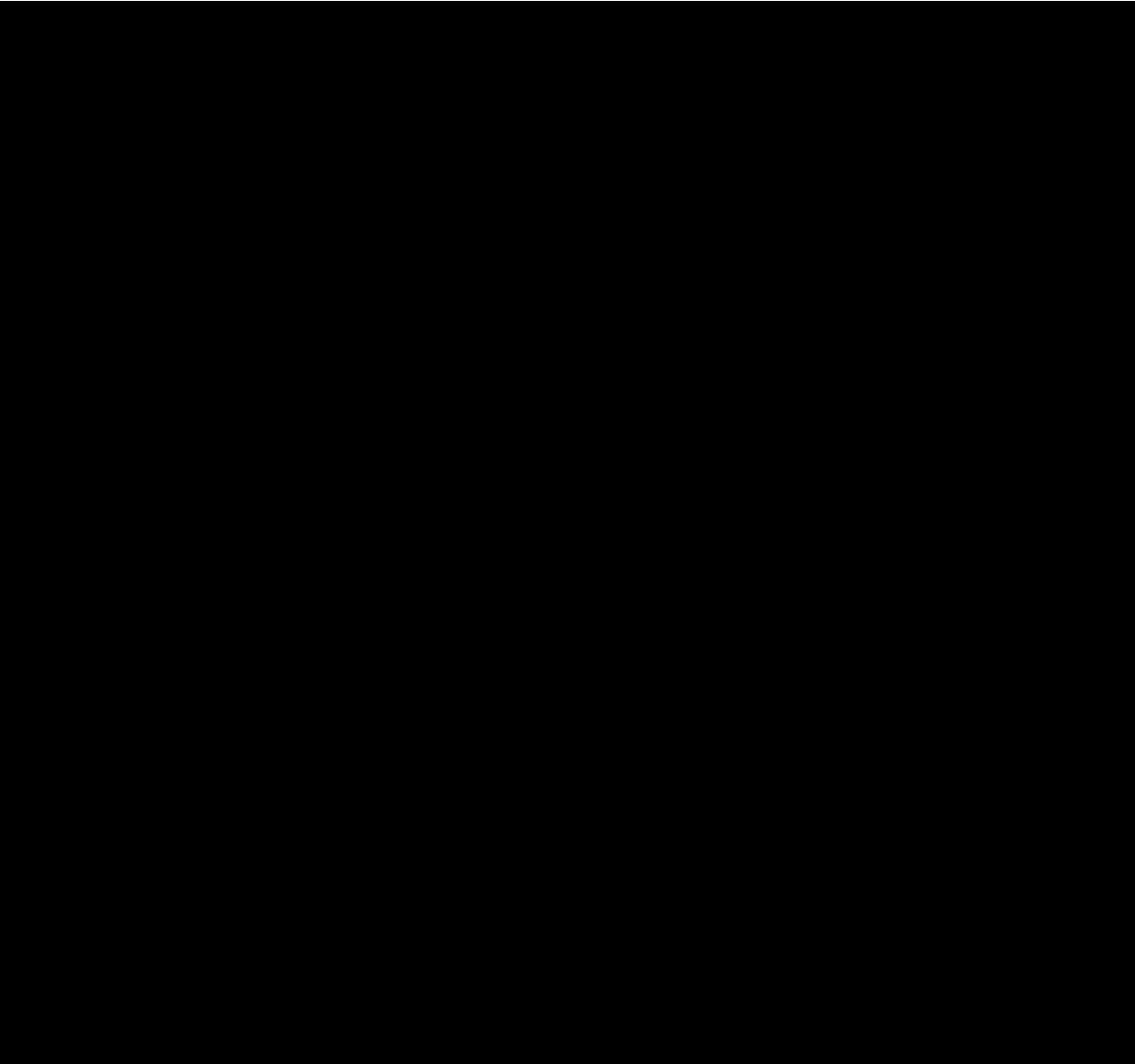
Fifth, during the reexamination the patent owner and the inventor submitted multiple briefs and documentation, including a declaration by the named inventor. D.I. # 108, Def. PFF ¶ 768. [REDACTED]

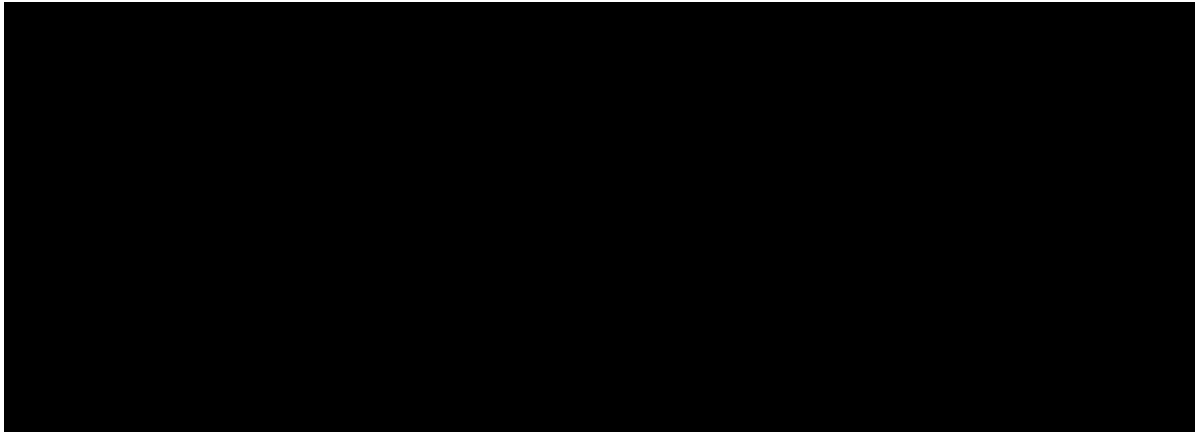
[REDACTED] A central dispute in the proceedings was the meaning of “flue gas” and what precisely the claims covered, and what exactly the Specification taught. D.I. # 108, Def. PFF ¶¶ 233–41. It strains credulity to think that under those circumstances neither the patent owner nor the inventor would state, anywhere, that in using the term “flue gas” and “injecting into flue gas” they mean to include the other two methods of introducing chemicals that were known to a POSA—pretreating coal and injecting into the combustion zone.

Given the specificity of language in the cited ’235 Patent, and all of the patent owner’s briefing about the location of flue gas, it would have been a simple matter to state that the invention purported to cover pretreating coal and injecting into the combustion zone. Indeed, they had quotable language at hand in the uncited provisional application. *See* D.I. # 107, Def. Op. Br. 56–57. The failure to assert in the re-

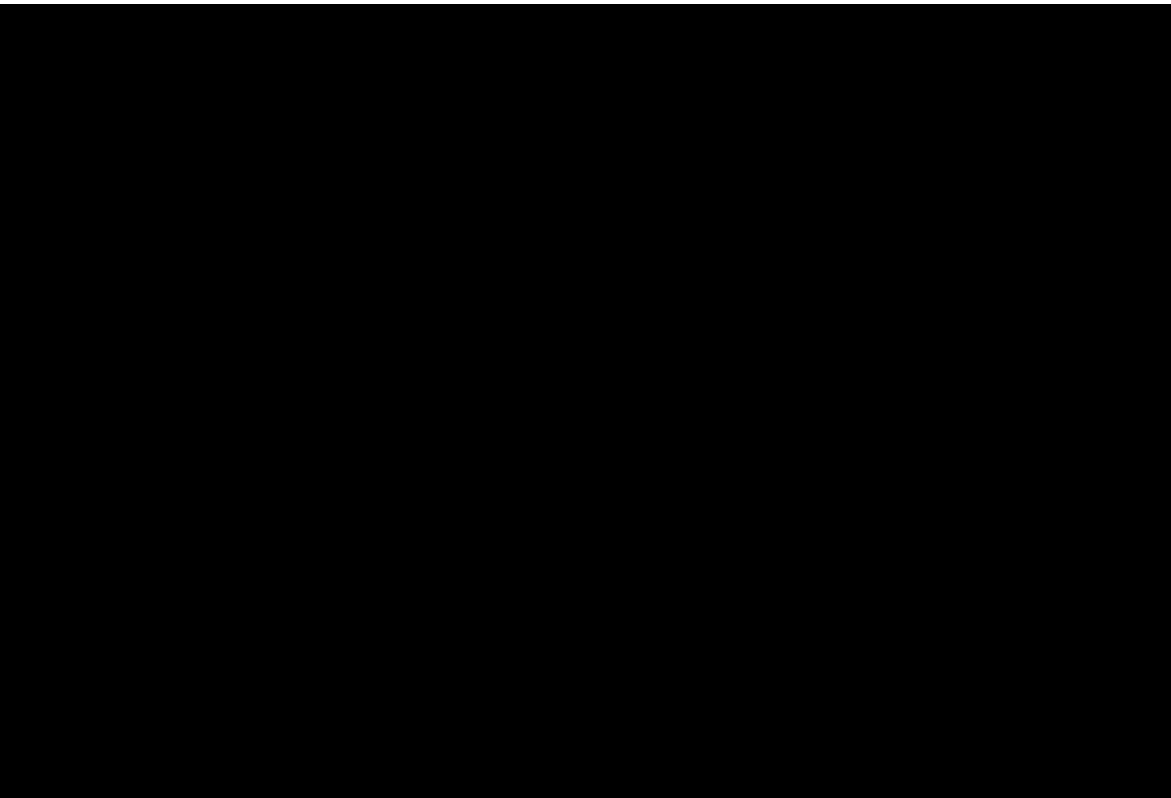
⁷ Plaintiffs argue that the use of the verbs “inject” and “provide” supports their claim construction because “in several of the claimed embodiments, the alkaline solid particles are generated in the combustion zone, suggesting that they are “provided” into “flue gas” there. D.I. # 135, Pl. Opp. Br. 81 (“This is consistent with and supports Plaintiffs’ position that flue gas is in the combustion zone.”). But Plaintiffs’ entire characterization of the claims is that the alkaline particles must adsorb mercuric bromide—which Plaintiffs repeatedly underscore does not form until the flue gas is cool enough for molecular bromine to form, and to react with mercury to form mercuric bromide. D.I. # 135, Pl. Opp. Br. 99; [REDACTED] In other words, “providing” the alkaline particles in the combustion zone, and then removing them before the mercuric bromide formed and adsorbed, would not satisfy Plaintiffs’ vision of the claims. Plaintiffs thus require that these particles be provided in what Defendants define as “flue gas”—and not in the combustion zone.

examination what Plaintiffs now seek is apparent: the patent claims would have failed for failure to comply with section 101 or with the written description requirement. *See* D.I. # 107, Def. Op. Br. 85–90, 110–15. Having made the tactical decision to write a narrower patent application than the Provisional Application disclosed, and to focus on which parts of the system contain “flue gas” rather than that they were seeking to cover pretreatment and injecting into the combustion zone, Plaintiffs should not now be able to argue that “injecting into the flue gas” sweeps in all methods of introducing chemicals.





The MerControl technology is covered by a US Patent. The Patent covers a method of treating coal combustion by halogen addition to at least the following locations: pre-furnace, in-furnace, and into the flue gas. This Agreement only permits MerControl use at the Arizona Electric Power Cooperative Apache Station Units ST2 and ST3.



Finally, Plaintiffs cite a number of other people's patents, but omit that those other writers rarely (if ever) use the term "*injecting into flue gas*" to include either "pretreating coal" or "injecting into the combustion zone." D.I. # 137, Def. Opp. Br. 41–55.

C. Plaintiffs' Efforts to Disavow the Briefing from the Reexamination Proceedings are Unavailing.

Defendants' Opening Brief reviews the reexamination proceedings directed to the '692 Patent, and identifies several statements that the patent owner made regarding the scope of its patent claims and the meaning of the term "flue gas." D.I. # 107, Def. Op. Br. 47–52; *see also id.* at 32–41. These statements include at least the two highlighted sentences in the following section of the patent owner's appellate brief, which is directed to the proper construction of the term "flue gas" under the "broadest reasonable interpretation" standard that applies to reexamination proceedings:

The references Appellant relies on demonstrate that the terms 'flue gas' and 'thermolabile' are not limited to a temperature range of 127 °C to 527 °C. Madden (U.S. Patent No. 6,372,187 to Madden; "Madden"), for example, does not define "flue gas" to be "the upper furnace cavity" as Appellant alleges, but quite clearly refers to a portion of the "flue gas" that resides in the upper furnace cavity. Madden, 4:1-13. ***To persons of ordinary skill in the art, 'flue gas' means that region of combustion gases from the upper furnace region through the emission control devices.*** Madden, 4:1-13; *id.* at FIG.2; U.S. Patent No. 5,787,823 ("Knowles"), at FIG.1. Similarly, Mendelsohn (U.S. Patent No. 5,900,042 to Mendelsohn; "Mendelsohn") does not define "flue gas" to have an upper temperature limit of 400 °C. Contrary to Appellant's assertion, Mendelsohn refers to an upper temperature limit of 400 °C for "typical systems" refers to the temperature range at which Mendelsohn's apparatus is operated. Mendelsohn, 2:18-32. ***Accordingly, the prior art is quite clear and consistent in its teachings that 'flue gas' refers to combustion gases which reside in the 'flue'—the region of a coal combustor from above the combustion zone through the particulate collection system.***

D.I. # 108, Def. PFF ¶ 235 (D.I. # 35-9, Respondent Hazelmere's Brief (Dec. 20, 2012), at 6) (emphases added).

The highlighted statements are fatal to Plaintiffs' claim construction positions in these cases. To combat them, Plaintiffs litter their Opposition Brief and their Opening

Brief in support of their motion for summary judgment with misstatements regarding the above-cited excerpt and the reexamination as a whole.

At the outset, Plaintiffs repeatedly characterize Defendants' arguments in these cases as "the same" as those made by the challenger in the reexamination proceedings. D.I. # 135, Pl. Opp. Br. 33, 35–37. But the arguments made here are quite different from the challenger's presentation. In the reexamination proceedings, the challenger argued that because the Specification only provided thermodynamic data for mercuric halides for 127 °C, 227 °C, 327 °C, 427 °C, and 527 °C, the claims should be limited to reactions within that range of temperatures. D.I. # 108, Def. PFF ¶ 233; D.I. # 35-9, Alstom's Brief (Nov. 21, 2012), at 9 ("Under the broadest reasonable construction, the term 'flue gas' should be construed to mean temperatures at or below 527 °C, which is consistent with the language of the claims and the specification."). The patent owner recognized that as the argument during the reexamination proceedings:

Conflating 'flue gas' and 'thermolabile' with a temperature range of 127 °C to 527 °C has no basis in the Oehr Patent. . . . ***and Appellant makes no reference to any document of record which provides support for such constructions.***

D.I. # 108, Def. PFF ¶ 241; D.I. # 35-9, Respondent Hazelmere's Brief (Dec. 20, 2012), at 5 (emphasis added).

Any suggestion by Plaintiffs that the argument that they addressed during the reexamination was the same argument that Defendants make here simply misstates their own briefing from the reexamination.⁸ As discussed in Defendants' Opp. Br. (at 15–17),

⁸ And the PTAB apparently saw the patent owner's argument the same way as Defendants do here, repeatedly referencing the challenger's argument as seeking to import a temperature range of 127°C to 527°C, with a cap of 527°C. See D.I. # 108, Def. PFF ¶¶ 255–60; D.I. # 35-10, Decision on Appeal (Dec. 12, 2013), at 3 ("We are not persuaded that the term 'thermolabile' or 'flue gas' ***limits the temperature range as suggested by Requester.*** . . ."), 4 ("the record provides

Defendants’ argument is not based on the discrete thermodynamic data provided in Table 2 of the Specification, and does not seek to limit the claim scope to those temperatures. D.I. # 137, Def. Opp. Br. 15–17. Nor, as was apparently the case in the reexamination proceedings, do Defendants propose a definition for “flue gas” that conflates gas with temperature, or even references a temperature. *Cf.* D.I. # 35–9, Alstom’s Brief 9 (“Under the broadest reasonable construction, the term ‘flue gas’ should be construed to mean temperatures at or below 527 °C, which is consistent with the language of the claims and the specification.”); D.I. # 108, Def. PFF ¶ 233. Instead, Defendants rely on the statement in the Specification about a characteristic of flue gas—an intrinsic disclosure as to what the patentee meant by the term “flue gas” in the ’692 Patent. A POSA would infer from that explicit statement about “flue gas temperatures” where the desired reaction is thermodynamically favored that “flue gas” in the ’692 Patent would not encompass gases in the much-hotter combustion zone. D.I. # 107, Def. Op. Br. 46–47, D.I. # 108, Def. PFF ¶ 208. That argument was not presented during the PTAB reexamination proceedings.

Next, Plaintiffs contend that the two highlighted statements are taken out of context or in isolation. D.I. # 135, Pl. Opp. Br. 36–41. To the contrary, those statements were made with purpose. The patent owner presented them in response to an argument or

persuasive evidence that it was known in the art at the time of the invention that ‘flue gas’ can be at **temperatures much higher than 527 °C.**”), 5 (“Further, we are not persuaded by the negative free energy of formation . . . **over the temperature range of 127 °C to 527 °C** reported in Table 2. . . . The ’692 Patent does not state that the reaction will not proceed at any **temperature greater than 527 °C** . . . “). Defendants’ reliance here on the Specification statement (i) does not relate to any temperature range; and (ii) does not infer any information regarding a **lower** temperature that is taught, only that the Specification teaches away from temperatures so high that the free energy would no longer favor the desired reaction—such as the very high temperatures that could be found at the combustion zone.

perceived argument regarding the meaning of “flue gas” as that term is used in the ’692 Patent. D.I. # 108, Def. PFF ¶¶ 234–44.

The first highlighted sentence responds to two arguments—that the terms “flue gas” and “thermolabile” are limited to a temperature range of 127 °C to 527 °C, and that a reference conflates “flue gas” with a place, rather than as the gases in that place. *See* D.I. # 108, Def. PFF ¶¶ 233–38; D.I. # 35-9, Alstom’s Brief (Nov. 21, 2012), at 9. In response to those arguments, the patent owner underscored: a) that “flue gas” refers to the gases, not the place; b) that the places where flue gas is located include those having higher temperatures than 527; and c) that “flue gas” is not *all* combustion gases, as Plaintiffs contend here, now that the patent has issued, but rather a “region” of combustion gases. D.I. # 108, Def. PFF ¶¶ 234–44 (D.I. # 35-10, Hazelmere’s Brief (Dec. 20, 2012), at 5–6).

The patent owner was equally clear in the second highlighted sentence. Responding to an argument that sought to place an “upper temperature limit of 400 °C” on “flue gas,” the patent owner responded that flue gases are not *all* combustion gases, but are only “*combustion gases which reside in the ‘flue,’*”; the patent owner then ensured that there could be no confusion by specifying that the flue begins “*above the combustion zone.*” D.I. # 108, Def. PFF ¶ 239; D.I. # 35-10, Hazelmere’s Brief (Dec. 20, 2012), at 6. The statement was evidently crafted so that “flue gas” would have its broadest reasonable interpretation, and thus would not be limited to gases cooler than 400 °C—but at the same time the term would not be so broad as to encompass *all* combustion gas. From its context, it is clear that the patent owner was rejecting an argument that flue gas had a ceiling temperature of 400 °C. And in so doing, the patent owner did not

suggest that flue gas had *no* ceiling temperature, or that the limit is the far higher temperatures of the gases in the combustion zone (the positions Plaintiffs take here), but rather that the limit would be the one corresponding to the temperature of the region “*above* the combustion zone.” D.I. # 108, Def. PFF ¶¶ 234–44 (D.I. # 35-10, Hazeltimer’s Brief (Dec. 20, 2012), at 5–6). That approach is utterly inconsistent with Plaintiffs’ position here that flue gas includes the gases in the combustion zone.

D. Plaintiffs Seek to Ignore the PTAB’s Decision on Reexamination.

The PTAB’s decision on appeal construes the term “flue gas,” providing a “broadest reasonable construction” that is *narrower* than what Plaintiffs seek here. The PTAB stated:

Thus, the broadest reasonable interpretation of the term ‘flue gas’ includes gases at temperatures up to 1260 °C or higher. We find this broader interpretation of ‘flue gas’ to be reasonable because the prior art relating to treating flue gas from coal combustion supports the finding that flue gas treatment materials may be injected in several locations between the boiler and the stack outlet.

D.I. # 134, Def. Resp. to Pl. PFF ¶ 261. The PTAB’s construction creates a daunting obstacle for Plaintiffs: it excludes the combustion zone, which has significantly *higher* temperatures. D.I. # 134, Def. Resp. to Pl. PFF ¶ 132. Moreover, the PTAB rendered this construction under the “broadest reasonable interpretation” standard (*see* D.I. # 136, Pl. Resp. to Def. PFF ¶¶ 255–56, 259 (D.I. # 35-10, Decision on Appeal (Dec. 12, 2013) (“During reexamination, ‘claims . . . are to be given their broadest reasonable interpretation. . . .’”), (“Thus, the broadest reasonable interpretation of the term ‘flue gas’ . . . “)). Thus, under a standard providing a *broad*er construction than under the *Phillips*

standard that applies in these cases, the PTAB announced a construction of “flue gas” that is narrower than what Plaintiffs seek here.

Plaintiffs try to avoid this construction in two ways, each without merit. *See, e.g.*, D.I. # 137, Def. Opp. Br. 37–41 (discussing Plaintiffs’ misunderstanding of the PTAB’s decision).

First, Plaintiffs suggest that the statement “temperatures up to 1260°C or higher” does not exclude the combustion zone, because “or higher” contemplates temperatures with no upper limit. D.I. # 135, Pl. Opp. Br. 48–49. But the PTAB decision in context belies that argument. *See* D.I. # 137, Def. Opp. Br. at 39–40.

Second, Plaintiffs suggest that temperature of 1260°C does not correspond to the “upper furnace” in accordance with the description of regions and their temperatures suggested by the Madden reference. D.I. # 135, Pl. Opp. Br. 48–49. The PTAB’s analysis, however, was quite clear: it reviewed several references; it then identified different furnace regions and the associated temperatures; and then it determined which regions were associated with “flue gas” or “injecting into flue gas.” D.I. # 136, Pl. Resp. to Def. PFF ¶¶ 258–60. The temperatures identified by the PTAB in the paragraph preceding the PTAB’s holding as to the broadest reasonable interpretation of “flue gas” statement are as follows:

Temperature °F	Temperature °C	Event or location	Cited Source
150	66	Outlet of a wet scrubber	Madden
300	148	Gas enters stack	Granite
450	232	Gas exits air preheater	Granite
800	427	Gas leaves economizer	Granite
	970	“describing ‘flue gas’ as having temperatures as high as”	Galbreath
2300	1260	Upper portion of furnace	Madden
2500	1371	Gas exits furnace	Granite
3000	1649	Coal input to the boiler	Madden

See D.I. # 136, Pl. Resp. to Def. PFF ¶¶ 258–60 (D.I. # 35-10, Decision on Appeal (Dec. 12, 2013), at 368, identifying each of the three cited sources, listing events or locations described in each, and stating temperatures for each).

The PTAB decision states that flue gas includes “gases at temperatures up to 1260°C or higher.” D.I. # 136, Pl. Resp. to Def. PFF ¶ 259. The PTAB’s discussion reflecting this particular temperature (*i.e.*, 1260 °C) is directed to the Madden reference. According to the PTAB decision, that temperature corresponds to the “upper portion **28** of a furnace,” and as such it does not sweep in the combustion zone. See D.I. # 137, Def. Opp. Br. 39–41.

Just as they would disregard the PTAB’s construction of “flue gas,” Plaintiffs repeatedly latch onto the sentence from the PTAB’s decision stating that “[t]he claims . . . are silent as to either temperature or location of treatment of flue gas.” D.I. # 135, Pl. Opp. Br. 49 (citing D.I. # 108, Pl. PFF. ¶¶ 202, 265). Plaintiffs cite this sentence no fewer than five times in their Opposition brief. D.I. # 135, Pl. Opp. Br. 30, 35, 47, 49. Each time, however, Plaintiffs suggest that it means that the claims have no temperature or location limits on flue gas or where injection can occur. As explained in Defendants’ Opposition Brief at 35–37, however, the sentence concerns the *treatment* of flue gas, not

where injection occurs. Moreover, Plaintiffs ignore that elsewhere in the decision, the PTAB recognizes that there are limits on the temperature and location of *flue gas* itself. D.I. # 137, Def. Opp. Br. 36–37 (citing D.I. # 108, Def. PFF ¶¶ 257–65). In other words, the claimed process is limited with respect to both temperature and location, but those limitations are carried into the claims within the definition of the term “flue gas,” which the PTAB provided. And finally, the statement itself is facially inaccurate—to the extent that claims require that the adsorption of mercuric bromide onto alkaline particles occurs before (upstream) of the particulate collection device, that necessarily places a limit on the “location” of injection, and treatment.

To summarize, Plaintiffs pin their hopes on an isolated sentence from the PTAB decision—one that relates to treating, not injecting; one that relates to whether under the broadest reasonable interpretation the claims contain any limitations apart from those that the PTAB (and the patent owner) said arose from the definition of “flue gas”; and one that simply ignores claim limitations relating to where injection must occur. That sentence undercuts Plaintiffs’ proposed claim construction.

E. Plaintiffs’ Additional Arguments in Support of their Proposed Claim Construction Are Also Without Merit.

Plaintiffs’ Opposition Brief reiterates many arguments from their Opening Brief in support of their motion for summary judgment.

First, Plaintiffs repeat that “Claim 19” contains an express definition of “flue gas” that should govern this Court’s claim construction. D.I. # 135, Pl. Opp. Br. 27–30. As explained in Defendants’ Opposition Brief at 6–15, there is no such definition, because the clause in which Plaintiffs find their putative definition (“wherein the flue gas is produced during the combustion of coal”) is not a definition, but rather a narrowing

limitation, which explains that the source of the flue gas is the combustion of coal, rather than the combustion of other fuels or the incineration of waste. *See* D.I. # 137, Def. Opp. Br. 6–15. “Wherein” as a narrowing limitation is also consistent with the use of that term in the other claims. Concluding that the cited clause in Claim 19 provided a definition would render terms in the claims superfluous, and many of the claims nonsensical. *See* D.I. # 137, Def. Opp. Br. 11. Nor would it assist the Court in resolving the disputed issues between the parties because, as explained in Defendants’ Opposition Brief at 53–55, Plaintiffs’ proposed construction is vague and does not address the issue that require resolution. *See* D.I. # 137, Def. Opp. Br. 53–55.

Second, Plaintiffs argue that their proposed construction is supported by the statement of Defendants’ expert witness, Dr. Jennifer Wilcox, that flue gas is “born in the combustion zone.” *See* D.I. # 135, Pl. Opp. Br. 51–52. That statement gives the initial source of flue gas, but Wilcox does not agree that flue gas is “the gas produced during the combustion of coal,” as Plaintiffs contend. Rather, as she has testified, it is her opinion that the gases resulting from combustion are not considered “flue gas” until combustion is ***substantially complete***, and that this does not occur until at least the upper furnace. D.I. # 108, Def. PFF ¶ 299. Plaintiffs agree that combustion is not substantially complete until after the addition of overfired air. D.I. # 108, Def. PFF ¶ 125.

Third, Plaintiffs refuse to address an unforgivable defect in their proposed construction: that in defining “coal combustion flue gas” as “the gases produced by the combustion of coal,” they ignore the word “flue.” Indeed, Plaintiffs do not appear to disavow the patent owner’s admission during the reexamination that the “flue” is a discrete entity with a specific meaning: “the region of a coal combustor from above the

combustion zone through the particulate collection system.” D.I. # 108, Def. PFF ¶ 239.

That definition does not include the combustion zone or even the furnace.

Fourth, Plaintiffs insist that their proposal that “flue gas” is all of the gases produced from combustion comports with a POSA’s use of the same term. *See* D.I. # 135, Pl. Opp. Br. 64–69. In citing select portions of testimony and extracting from deposition exchanges, however, Plaintiffs ignore that not one of Defendant witness actually agreed with Plaintiffs’ proposed construction or suggested that is how they use the term “flue gas.” *See id.* Jerry Lokenvitz, the plant manager for the Columbia facility, testified as follows:

Q Have you ever heard the term “flue gas”?

A Yes.

Q Is there flue gas in the furnace when it’s in operation?
[objection omitted]

A To me flue gas is in the ductwork after it’s left the boiler.

D.I. # 136, Def. PFF 283 (Lokenvitz Dep. 99:18–25).

* * * * *

Q And in your career you've never heard the term “flue gas” used to refer to any contents of the furnace when it's in operation?
[objection omitted]

A I've always heard that it's in the ductwork after it's left the furnace.

Id. (Lokenvitz Dep. 100:9–14). And Kevin Hujet, the plant manager for the Weston plant, stated:

Q Correct. So you have the MerSorb and S-Sorb or their constituent components. You have the -- the portions of the coal that didn't combust. You have the fly ash and the bottom ash until it drops out all swirling around along with the combusting portion.

And all that swirling gas is called flue gas in the industry, correct?
[objections omitted]

A I don't really talk about that as being flue gas at that point. It's the combustion zone, I call it.

Q But you've heard it called flue gas before?

A I've heard the term "flue gas." I haven't really discussed that as being where it -- you know, where -- what the mixture is inside the boiler.

D.I. # 103, Pl. PFF ¶ 463 (Hujet Dep. 40:4–19).

Finally, neither the patent disclosure, nor the patent claims, nor Oehr's declaration during the reexamination, nor the patent owner's appeal brief, nor the PTAB decision, states that the purported invention of the '692 Patent includes either pretreating coal with a "thermolabile molecular bromine precursor," or injecting into the flue gas. Oehr knew about those two methods of treatment, as he specified them in his own prior patents. D.I. # 108, Def. PFF ¶¶ 365–411. Other people's patents described which of the methods for introducing chemicals would work. POSAs at the time expected patents and other documents to tell them which methods for introducing chemicals were covered or would be expected to work. D.I. # 108, Def. PFF ¶¶ 154, 161, 365.

The best Plaintiffs can come up with now is a statement in the patent about varying how much substance to use, which their expert witness has weakly opined is a consideration where the "site" of introduction is varied—itself not limited to [or even suggesting] a variation **among** methods because varying the "site" includes moving along the flue gas ductwork, or varying the injector ports leading to the combustion zone. *See* D.I. # 102, Pl. Op. Br. 72–73.

The scope of the claims was hotly litigated during the reexamination proceedings; the inventor submitted a declaration, and the patent owner submitted an appellate brief. Not once did the inventor or owner suggest that they intended to include these other methods within the scope of the claims, or that they were included—which surely would have been expected if they were specially defining the term “injecting into the flue gas” to encompass the other two methods. Surely somewhere someone would have said that in *this* patent, the term is used in this special way.

F. Plaintiffs’ Criticisms of Defendants’ Proposed Claim Constructions Are Unavailing.

Plaintiffs advance several additional arguments criticizing Defendants’ proposed constructions of “flue gas” and “injecting into the flue gas.” Each is without merit.

First, Plaintiffs return to their unsupported position that Defendants’ proposed claim construction would exclude specific embodiments from the Patent, including specifically enumerated preferred embodiments. D.I. # 135, Pl. Opp. Br. 74–76. These purportedly “excluded” but preferred embodiments include injection “after the superheater section” and in the “economizer/ESP . . . of the combustor.” *See id.* As shown in Defendants’ Opening Brief, however, Defendants’ proposed constructions do not exclude any of these embodiments. *See* D.I. # 107, Def. Op. Br. 45–50. Injection into flue gas “after the superheater section” is encompassed under Defendants’ proposed constructions because, for example, all of the flue gas ductwork is located after the superheater sections. *See* D.I. # 107, Def. Op. Br. 45.

Likewise, the preferred embodiment of injection into the economizer is covered by Defendants’ proposed constructions; although Plaintiffs’ attorneys drew the “end of the boiler” to be *after* the economizer, the technical evidence does not support that

drawing. D.I. # 108, Def. PFF ¶¶ 133–36. For example, Plaintiffs’ expert witness, Dr. Andrew Fry, explains that the “boiler” is used to heat *steam*, whereas Plaintiffs’ Second Amended Complaint alleges that the economizer is used to heat *water*, before it is transmitted into the “steam drum” to make steam (D.I. # 35-15, *Steam Generation: An Overview*, in *STEAM: ITS GENERATION AND USE* (Steven C. Shultz and John B. Kotto eds., 40th ed. 1992), at 1-8); the preferred embodiment references the “economizer/ESP” section, and the Precipitator is downstream of the “End of Boiler” indicated by Plaintiffs; and the PTAB appellate decision permitting injecting “between the boiler and the stack outlet” would exclude the economizer unless it was after the boiler. *See* D.I. # 137, Def. Opp. Br. 22–28.

Second, Plaintiffs argue that Defendants’ proposed constructions are unworkable as vague because they involve identifying the boundary of the combustion zone. *See* D.I. # 135, Pl. Opp. Br. 54–55. For this criticism, Plaintiffs’ rely on the putative inability of Defendants’ expert witness, Wilcox, to identify the boundary of a combustion zone in a series of cartoons. *See id.* Even aside from the logical inconsistencies in Plaintiffs’ position, the criticism simply misses the mark. The proposed construction depends on flue gas meeting several criteria, including that it be above the combustion zone, and that it be “substantially-combusted.” *See* D.I. # 82, Amended Joint Table of Terms Requiring Construction (Defendants’ proposed construction for “coal combustion flue gas” and related claim terms is “[t]he gases in the region from above the combustion zone through the stack outlet that result from the substantially-complete combustion of coal.”).

Even if Wilcox could not point to the boundary of the “combustion zone” on the cartoon she was given, Plaintiffs have not shown that she was unable to identify the gas

meeting the proposed definition. In any event, it is of no moment whether anyone can tell where the combustion zone begins and ends on that “cartoon,” or where the flue gas is, because as explained in Defendants’ Opposing Brief at 20–21, the specific drawing that Wilcox was asked about did not indicate what the stippling, crosshatching, greyscale, and coloring were supposed to indicate⁹, or what the combustion conditions were—and whether the system employed overfired air. *See* D.I. # 137, Def. Opp. Br. 20–21.

Any such criticism would apply with even greater force to Plaintiffs’ proposed construction, as Fry could not identify where gases ceased to be flue gas. *See* D.I. # 108, Def. PFF ¶ 132. Plaintiffs’ response, that the only flue gas that is relevant to the claims is the flue gas that is located before the particulate collectors, D.I. # 136, Pl. Resp. to Def. PFF ¶ 132; D.I. # 135, Pl. Opp. Br. 62, begs the question in two ways: (i) the location “before the particulate collectors” is a different claim limitation, and does not render Plaintiffs’ proposed construction of the “flue gas” limitation any more precise; and (ii) Plaintiffs cite no evidence that gases after the particulate collectors are of no concern—an odd statement for an invention purportedly directed to reducing emissions.

Third, Plaintiffs deride the definition of “flue gas” cited from Combustion Engineering, which expressly defines “Flue Gas” as “The gaseous products of combustion in the flue to the stack,” and “Flue” as “A passage for products of combustion.” *See* D.I. # 135, Pl. Opp. Br. 70; D.I. # 103, Pl. PFF ¶ 320; D.I. # 108, Def. PFF ¶ 284; D.I. # 90-176, Mark Decl. (Apr. 16, 2019) Ex. 189, *Combustion Engineering: A Reference Book on Fuel Burning and Steam Generation* (2d ed., 1967), Appendix B—

⁹ Moreover, there is no indication as to whether the shading depicts air, fuel, combustion gases, all gases, or fly ash.

13. That definition of “Flue Gas” is the *only* evidence offered in this case that is an actual definition of “flue gas” from a document directed to people akin to the POSAs defined for this case. Unlike Plaintiffs’ “definitions,” this definition says what “flue gas” is, and not just where it comes from. Plaintiffs’ specific comments regarding other statements in the text are not to the contrary, and do not provide any alternate definition.

Fourth, Plaintiffs’ suggestion that Defendants’ proposed constructions are vague or unworkable omits that the terminology reflects the statements that the patent owner made to the PTAB during the reexamination appeal, or that the PTAB provided in its decision. The following chart shows these sources:

Claim Term	Defendants’ Proposed Construction (D.I. # 82, Amended Joint Table of Terms Requiring Construction)	Statements from Reexamination
“coal combustion flue gas”; “said flue gas”; “the flue gas”; “flue gas . . . wherein the flue gas is produced during the combustion of coal”	The gases in the region from above the combustion zone through the stack outlet that result from the substantially-complete combustion of coal.	“‘flue gas’ refers to combustion gases which reside in the ‘flue’—the region of a coal combustor from above the combustion zone through the particulate collection system” (D.I. # 108, Def. PFF ¶ 239 (D.I. # 35-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 408))
“injecting . . . into said flue gas”; “injecting into the flue gas”	Injecting into the flue gas stream after the boiler and before the stack outlet.	“flue gas treatment materials may be injected in several locations between the boiler and the stack outlet” (D.I. # 103, Pl. PFF ¶ 231 (D.I. # 35-10, Decision on Appeal, 6–7.))

Finally, Plaintiffs argue that Defendants’ proposed construction of “injecting into the flue gas” is defective because it provides a narrower range of injection sites than everywhere that “flue gas” can be found under Defendants’ proposed construction of that term. Defendants explain why this putative criticism is a red herring in their opposition brief. D.I. # 137, Def. Opp. Br. 38–39.

III. Under Defendants’ Proposed Construction of “Flue Gas” or “Injecting Into Flue Gas,” Summary Judgment Of No Infringement Should Be Granted.

Defendants’ brief in support of its motion for summary judgment explains why summary judgment of no direct infringement should be entered if Defendants prevail on their claim constructions. *See* D.I. # 107, Def. Op. Br. 59–63; *see also id.* at 63 (summary judgment of no indirect infringement required if no direct infringement). In response, Plaintiffs concede that the Refined Coal Defendants, Arbor and Portage, do not themselves perform acts that could constitute direct infringement, and accordingly the claims against them should be dismissed. D.I. # 135, Pl. Opp. Br. 101.

With respect to the utility Defendants, Plaintiffs cite no evidence that either of the accused plants has a pump or any equipment that is, or could be, used to inject a thermolabile molecular bromine precursor from a tank or other container into the flue gas ductwork, or into the upper furnace, or indeed into any region of the plant located after the combustion zone. *See* D.I. # 135, Pl. Opp. Br. § IV.A.1. Nor do they cite any evidence that either plant introduces a solution containing a bromide compound or a thermolabile molecular bromine precursor into any of those regions. *See id.* Plaintiffs’ sole theory of infringement under Defendants’ proposed construction of “flue gas” and “injecting into the flue gas” is that Refined Coal may contain some calcium bromide that travels through the combustion zone, past the lower furnace, past the nose arch, and into

the upper furnace or some later portion of the boiler that may contain flue gas. *See* D.I. # 135, Pl. Opp. Br. 96. Their sole evidence for this speculative pathway, however, is the opinion of their expert witness, Fry, that “it is . . . possible” that some calcium bromide is “injected into” the “flue gas” in this manner. *See id.* (“Dr. Fry opined, in his Third Expert Report, that although he does not disagree that most of the MerSorb would decompose in the combustion zone, it is still possible that at least some of the MerSorb (calcium bromide) would not instantly decompose, but would flow under pressure and be injected into the region defined by Defendants as where ‘flue gas’ resides. PFF ¶¶ 987–989.”)

Plaintiffs bear the burden of proving infringement, which requires proof that a defendant performs each and every element of an asserted process claim. *See* D.I. # 107, Def. Op. Br. 59. In opposing a motion for summary judgment, the non-moving party must come forward with evidence in support of those assertions. This requires more evidence than an opinion that “it is . . . possible” that one or more Defendants perform the act alleged to constitute infringement. *See First Years, Inc. v. Munchkin, Inc.*, 575 F. Supp. 2d 1002, 1021 (W.D. Wis. 2008) (denying motion for summary judgment of infringement of patent relating to spill-proof lids on sippy cups, because although evidence of “average” weight of accused sippy cups means that “it is possible that” some of the accused met the weight limitation of the claims, “plaintiff has not shown this as a matter of law”). In *General Elec. Co. v. Sonosite, Inc.*, 568 F. Supp. 2d 983, 992 (W.D. Wis. 2008), the plaintiffs asserted that the defendant’s use of a “Color Suppress” function in a blood flow imaging display amounted to infringement of their patent relating to blood flow imaging. While acknowledging that “it is possible that the accused products

may infringe if they are used with the Color Suppress feature activated,” the court found that the defendants were entitled to summary judgment of noninfringement, because plaintiffs did not present sufficient specific evidence. 568 F.Supp. 2d at 992.

Recognizing that from the evidence, “[i]t is not clear how often, when, or by whom these [potentially infringing] tests are performed,” the court concluded that “it would be sheer speculation to conclude that infringement has occurred or is occurring.” *Id.* Here, too, the lone opinion that “it is . . . possible” that calcium bromide reaches flue gas is far short of the evidentiary burden Plaintiffs must carry to defeat summary judgment of non-infringement.

Moreover, other statements by Plaintiffs affirmatively establishes that there is no infringement under Defendants’ proposed construction. First, Plaintiffs admit in both their opposition brief and in their opening brief that, under Defendants’ proposed construction, Defendants do not “inject into flue gas.” They state:

[D]efendants['] definition conveniently construes “flue gas” to mean the gas in the plant anywhere except where the Defendants inject their thermolabile molecular bromine precursor in the accused plants.

D.I. # 135, Pl. Opp. Br. 26; *see* D.I. # 102, Pl. Op. Br. 28 (“Defendants contend . . . that the term “flue gas” should be construed to mean the gas in the plant generally anywhere except where the Defendants inject their thermolabile molecular bromine precursor”).

According to Plaintiffs, the injection occurs in the combustion zone. *See id.* As this description makes clear, Plaintiffs agree that under Defendants’ proposed construction there is no flue gas at that location. *See id.* Thus, although Defendants dispute that they “inject their thermolabile molecular bromine precursor” anywhere at all, because they

pretreat coal,¹⁰ this statement by Plaintiffs is a stark admission that what Plaintiffs accuse Defendants of doing is not covered by the Asserted Claims, at least under Defendants' proposed construction.

Plaintiffs' statements touting non-infringement do not stop there. In attempting to argue that the claims of the '692 Patent are directed to patentable subject matter, Plaintiffs underscore their position distinguishing between two of the verbs in the patent claims—"injecting," which applies to the "bromide compound that is a thermolabile molecular bromine precursor," and "providing," which applies to the "alkaline solid particles." Plaintiffs state:

Thus, the term "providing into flue gas" captures the concept that the solid alkaline particles are added to the flue gas as opposed to derived simply from the combustion of the coal itself . . . the alkaline solid particles of the claims may be *either* injected into flue gas *or* generated by the combustion of coal itself.

D.I. # 135, Pl. Opp. Br. 80 (emphasis added). In Plaintiffs' own words, "injected into flue gas" is one mechanism of providing alkaline solid particles and a distinct, alternative mechanism is "by the combustion of coal." *See id.* Plaintiffs' own theory of their claims thus admits that the act of combusting coal cannot generate the "thermolabile molecular bromine precursor" that must be "injected into the flue gas." That precludes Plaintiffs from asserting their claims against the use of pretreated coal, such as Refined Coal, where the asserted "injection . . . into flue gas" derives from the combustion of that Refined Coal.¹¹

¹⁰ Moreover, Plaintiffs have not proved that Refined Coal is a "bromide compound," as the jointly-proposed construction requires.

¹¹

Plaintiffs have failed to adduce any disputed material facts that would defeat a finding that, under Defendants’ proposed claim construction, there is no direct infringement.

IV. Regardless of the Court’s Claim Constructions, Defendants Are Entitled to Summary Judgment on Various Issues.

A. Arbor and Portage Do Not Directly Infringe.

Defendants’ opening brief explained that summary judgment should be granted for Arbor and Portage on the issue of direct infringement, because these Refined Coal LLCs do not burn coal, are not responsible for the power plants doing so, and cannot be liable under any theory of joint infringement. *See* D.I. # 107, Def. Op. Br. 64–69.

In response, Plaintiffs concede that “Defendants Arbor and Portage do not burn Refined Coal in a furnace,” a necessary step in the accused method. D.I. # 135, Pl. Opp. Br. 101; [REDACTED] Thus, the parties agree that Arbor and Portage can be liable for direct infringement only if Arbor and Portage “exercised the requisite direction and control over the power plants’ activities such that they should be liable for joint infringement.” D.I. # 135, Pl. Opp. Br. 101. Because Arbor and Portage did not have such authority, the Court should enter summary judgment that Arbor and Portage have not directly infringed.¹²

[REDACTED]). Accepting this opinion as true for purposes of summary judgment would also compel a finding of non-infringement under Defendants’ proposed constructions, because under the parties’ joint proposed construction of the “bromide compound that is a thermolabile molecular bromine precursor,” the compound must itself be a “bromide compound.” If the calcium bromide “would volatilize and exist as radical,” it would no longer be a “bromide compound” even if it were—as Plaintiffs contend—carried along and “injected” into the flue gas.

¹² [REDACTED]

There is no dispute concerning the standard for determining joint infringement. Under the Federal Circuit’s decision in *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 797 F.3d 1020 (Fed. Cir. 2015) (“*Akamai V*”), Arbor or Portage can be held liable for direct infringement alongside their power plant customers only if Arbor or Portage: (1) “direct[ed] or control[led]” their respective customers; or (2) “form[ed] a joint enterprise” with their respective customers. *Id.* at 1022–23; D.I. # 135, Pl. Opp. Br. 101. Plaintiffs have failed to support either theory.

1. Plaintiffs Fail to Support the Assertion That Arbor and Portage “Direct or Control the Power Plants’ Performance.”

Plaintiffs rely on *Travel Sentry, Inc. v. Tropp*, 877 F.3d 1370 (Fed. Cir. 2017), to elaborate the “direction and control” standard. *See* D.I. # 135, Pl. Opp. Br. 102. Under *Travel Sentry*, to be liable as direct infringers, Arbor and Portage must (1) “condition[] participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method” **and** (2) “establish[] the manner or timing of that performance.” *Id.* at 1378 (quoting *Akamai V*, 797 F.3d at 1023). Plaintiffs do not satisfy either element of this test.

First, in order to concoct a “conditioning” theory, Plaintiffs mischaracterize the commercial relationship between the Refined Coal LLCs and the power plant operators.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Plaintiffs' cited evidence does not support their assertion. *See id.* (citing Case 280, D.I. # 108, Pl PFF ¶ 159; Case 280, D.I. # 113, Def. PFF ¶¶ 781, 808 [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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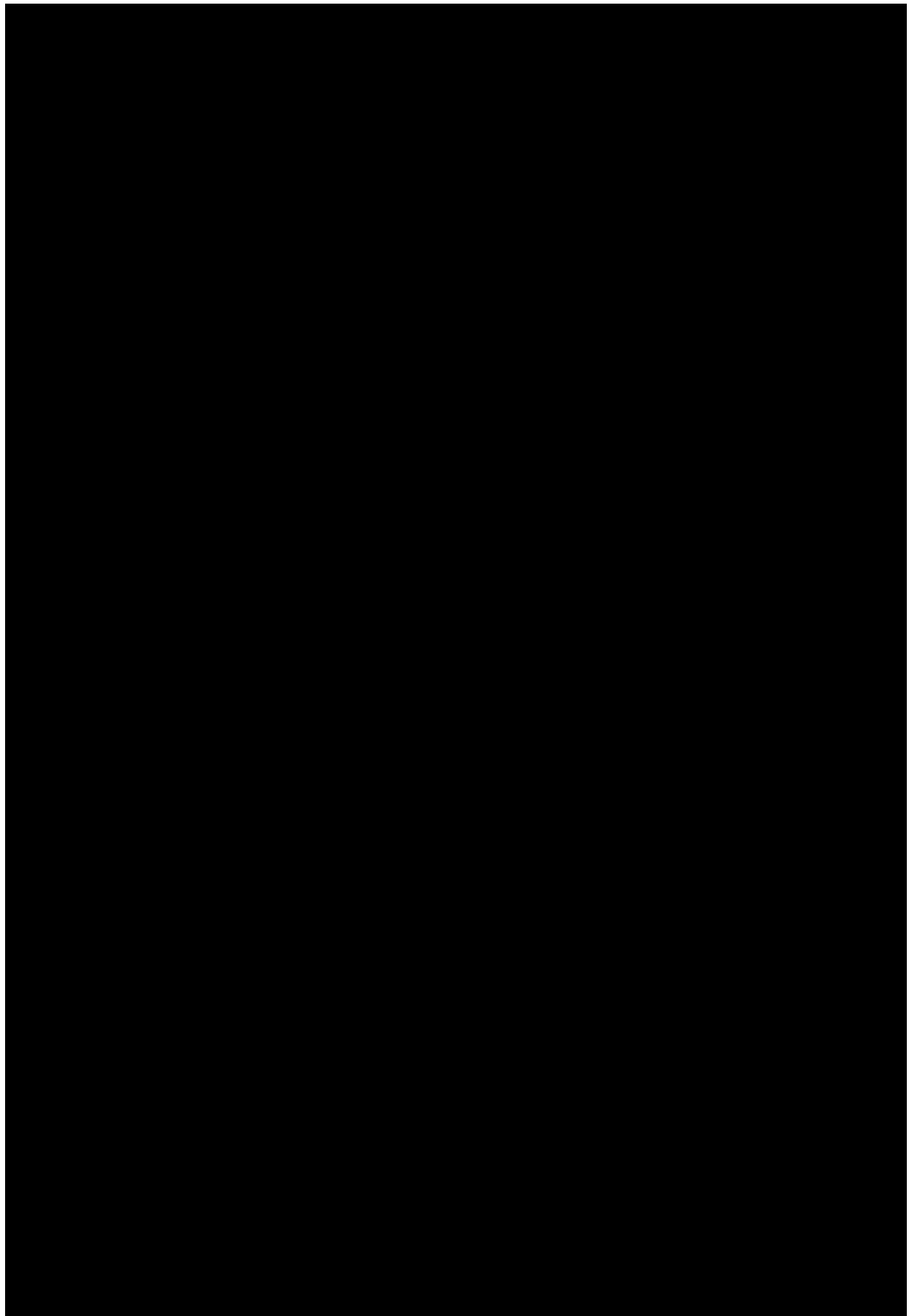
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The cases Plaintiffs cite serve only to highlight what Plaintiffs’ joint infringement case lacks. *See* D.I. # 135, Pl. Opp. Br. 103.

For example, in *Akamai V*, the Federal Circuit held that the “conditioning” prong could be supported by a service contract that “delineates the steps customers must perform,” *if* those steps include the claimed method steps. *Akamai V*, 797 F.3d at 1024.

[REDACTED]

[REDACTED]—*i.e.*, they do not show that the utilities were required to burn Refined Coal and thereby, according to Plaintiffs, “inject [thermolabile molecular bromine precursors] . . . into the flue gas.” Similarly, in *Akamai V*, the Federal Circuit held that the defendant “established the manner or timing” of infringement by “continuously engag[ing] with customers’ activities” and providing “step-by-step instructions” that included how to perform the claimed method steps. *Id.* at 1024–25.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In another opinion cited by Plaintiffs, *f’real foods, LLC v. Hamilton Beach Brands, Inc.*, No. CV 16-41-CFC, 2019 WL 1747554, at *1 (D. Del. Apr. 18, 2019), there

was no discussion whatsoever about the parties' evidence. The underlying briefs, however, show that the accused infringer provided its customers step-by-step instructions on how to practice the accused method—again, something that Plaintiffs have not demonstrated here. *See f'real foods, LLC v. Hamilton Beach Brands, Inc.*, No. CV 16-41-CFC (D. Del.), D.I. # 211 at 31. Likewise, in *Travel Sentry*, the patentee offered evidence that the accused infringer provided its customers instructions on how to use the special keys and locks in the manner claimed in the patent. *See Travel Sentry*, 877 F.3d at 1376.

Plaintiffs here have not offered any comparable evidence that Arbor or Portage did anything to direct their customers in the performance of any step of the allegedly infringing method—from providing the reactor design details and specifications and operating conditions that Plaintiff say are required to ensure that a particular bromide compound will act as a thermolabile molecular bromine precursor in the system; to ensuring that the reactor operating conditions will generate the reaction pathway required by the patent claims; to operating under conditions that ensure that neither molecular bromine nor mercury will get absorbed by reactor components rather than alkali sorbents; to directing the plants on how to provide alkali sorbents in the flue gas; to ensuring that the plants employ a baghouse or other particulate collection device and use it to capture precipitate. The absence of any such evidence in this case is fatal to Plaintiffs' joint infringement position.

Plaintiffs also cite the summary judgment opinion in *Sound View Innovations, LLC v. Hulu, LLC*, No. 2:17-cv-04146 (C.D. Cal. Apr. 30, 2019), but that court's decision on joint infringement was limited to a question that is not even at issue here: whether a

party that itself performs none of the claimed steps even *can* be liable as a joint infringer. *See Sound View Innovations, LLC v. Hulu, LLC*, No. 2:17-cv-04146 (C.D. Cal. Apr. 30, 2019), D.I. # 452 at 12–13. It happens to be the case that Arbor and Portage do not perform even a single step of the accused methods, but that is not why they do not directly infringe. They do not directly infringe because, under *Akamai V* and its progeny, Arbor and Portage did not “direct[] or control[]” the power plants’ combustion of coal and, as explained below, did not “form[] a joint enterprise” for that purpose. *See Travel Sentry*, 877 F.3d at 1378 (citing *Akamai V* at 1022).

2. Plaintiffs Fail to Support the Assertion That “All Defendants” in Each Case “Form a Joint Enterprise.”

Plaintiffs agree that they must prove four elements to establish that a joint enterprise exists:

- (1) “an agreement, express or implied, among the members of the group”;
- (2) “a common purpose to be carried out by the group”;
- (3) “a community of pecuniary interest in that purpose, among the members”; and
- (4) “an equal right to a voice in the direction of the enterprise, which gives an equal right of control.”

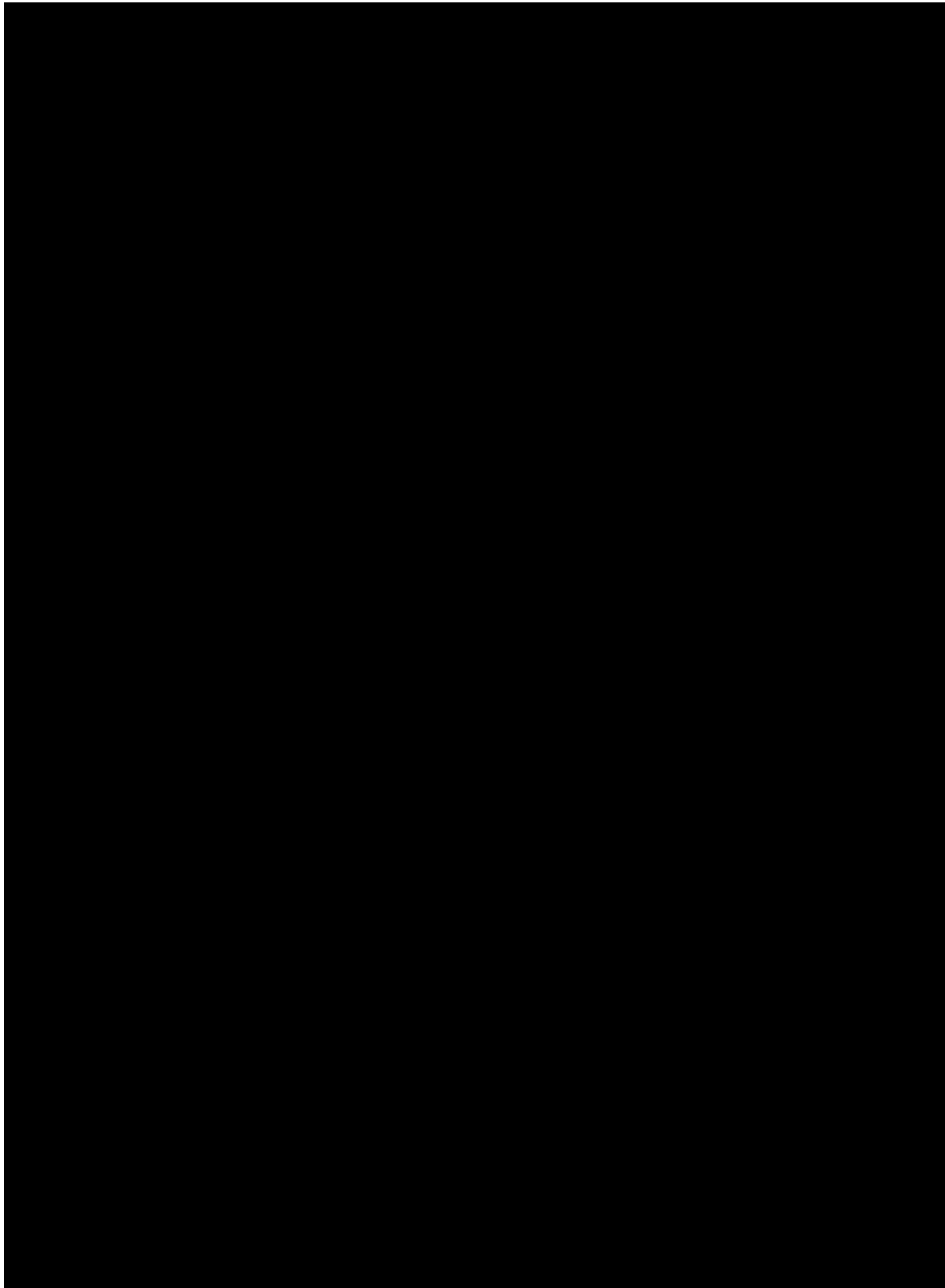
See Akamai V, 797 F.3d at 1023 (quoting and adopting Restatement (Second) of Torts § 491 cmt. c); *accord* D.I. # 135, Pl. Opp. Br. 104. Plaintiffs have failed to provide evidence sufficient to support a finding that any of these four elements exist.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Second, Plaintiffs have not identified a legally cognizable “common purpose” between the Refined Coal LLCs and their power plant customers. Plaintiffs state only that the agreements between the parties “set out the common purpose of manufacturing and making use of Refined Coal.” D.I. # 135, Pl. Opp. Br. 106. But that formulation (making and using) can be used to describe any commercial agreement between a manufacturer and its customer; it cannot be the case that the combination of “manufacturing” and then “making use of” a product is a sufficiently “common” purpose under *Akamai V*. To allow that would be to eliminate this prong of the Restatement approach altogether and hold that nearly all commercial relationships satisfy this element of a “joint enterprise.”

Plaintiffs cite no authority to support their broad generalization. To the contrary, cases applying the Restatement approach, both before and after *Akamai V*, show that a singular, outward-facing purpose, beyond mere purchase and sale, is needed. *See Agri-Labs Holding LLC v. Taplogic, LLC*, 304 F.Supp. 3d 773, 796 (N.D. Ind. 2018) (citing *Koninklijke Philips N.V. v. Zoll Med. Corp.*, 656 Fed. Appx. 504, 521 (Fed. Cir. 2016) (“A party that sells an apparatus capable of performing a patented method is generally not liable for direct infringement if that infringing act comes to pass. Instead, the direct infringer would be the party who put that apparatus to use to perform the patented method.”)); *see also Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1221 (Fed. Cir.

2014) (finding that direct infringement liability [is not created] “whenever an alleged infringer sells a product that is capable of executing the infringing method”); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed. Cir. 2009) (finding sale of software alone does not directly infringe method claims of patent); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311 (Fed. Cir. 2006) (“Method claims are only infringed when the claimed process is performed, not by the sale of an apparatus that is capable of infringing use.”).

The cases cited by Plaintiffs underscore this point. *See* D.I. # 135, Pl. Opp. Br. 104–07. In *Shure, Inc. v. ClearOne, Inc.*, No. 17 C 3078, 2018 WL 1371170, at *9 (N.D. Ill. Mar. 16, 2018), the accused infringers shared the “common purpose of increasing interoperability and marketing the products’ compatibility” to third parties. Similarly, in *Reagent Chem. & Research, Inc. v. Eurotarget S.R.L.*, No. 1:16-CV-395, 2016 WL 8200435, at *6 (M.D. Pa. May 23, 2016), the alleged infringers (target shooters and target-shooting facilities) were alleged to be working together to perform “the shooting activity of the Method Claims.”¹⁴ Here, Plaintiffs do not identify any shared goal among the Defendants.

Plaintiffs also argue that the “only use” the Columbia Energy Center and the Weston Power Plant have for Refined Coal is to burn it. D.I. # 135, Pl. Opp. Br. 103. This, too, fails to support a finding of “common purpose” under the Restatement

¹⁴ *Reagent* also should be distinguished, because the alleged joint infringers there were a subsidiary and its “indirect owner,” which—by virtue of its indirect ownership—“would be in the position to cause [the subsidiary] to cease launching the Accused Targets . . . by ordering it directly to do so.” *See id.* at *5. Here, the Refined Coal LLCs and the power plant operators have no shared ownership interests.

approach. To find that selling a product with no substantial noninfringing use is sufficient to show joint direct infringement would render Section 271(c) of the patent statute, which defines such a practice as *indirect* infringement, completely meaningless. *See* 35 U.S.C. § 271(c).

Third, Plaintiffs have not identified any “community of pecuniary interest” in the putative common purpose of “manufacturing and making use of Refined Coal.” Plaintiffs simply assert that each party has a pecuniary interest because “the burning of the coal ‘generate[s] profits.’” D.I. # 135, Pl. Opp. Br. 107 (quoting *Reagent*, 2016 WL 8200435, at *6) (alteration in brief). That formulation can be used to describe any for-profit commercial transaction. Such a general goal cannot suffice under *Akamai V*.

Plaintiffs’ argument is also inconsistent with what Plaintiffs assert to be the “common purpose” of the joint enterprise: “manufacturing **and** making use of Refined Coal.” D.I. # 135, Pl. Opp. Br. 106 (emphasis added). To establish joint enterprise liability in tort, “the community of pecuniary interest must be *in* the specific common purpose.” *Servicios Especiales Al Comercio Exterior v. Johnson Controls, Inc.*, 791 F. Supp. 2d 626, 636 (E.D. Wis. 2011) (citing 46 Am.Jur.2d Joint Ventures § 4) (emphasis added). Plaintiffs have not identified any “profits” that stem from the manufacturing **and** use of Refined Coal—let alone profits that are held “in ‘community’” by the Refined Coal LLCs and their power plant customers, “‘without special or distinguishing characteristics.’” *See Servicios Especiales*, 791 F.Supp. 2d at 636–37 (quoting *St. Joseph Hosp. v. Wolff*, 94 S.W.3d 513, 528 (Tex. 2002) (applying Restatement approach)). Here, the commercial arrangement is straightforward: the Refined Coal facilities’ profits belong to them; the power plant operators’ profits belong to them. The purpose of the

Columbia Energy Center and the Weston Power Plant is to generate electricity, D.I. # 108, Def. PFF ¶ 99–100; D.I. # 72, First Fry Report ¶ 48, and the purpose of Arbor and Portage is to make and sell Refined Coal, D.I. # 134, Def. Resp. to Pl. PFF ¶ 14, 280 Case D.I. # 139, Def. Resp. to Pl. PFF ¶ 14, D.I. # 69, Wilcox Dep. 56:7–16.

Indeed, Plaintiffs do not identify *any* specific sources of profit in the “Joint Enterprise” section of their brief. To the extent that they intended to rely on the “Per Ton Fee” paid to the power plant operators, the basis for that fee is discussed above, in Section IV.A.1. That fee is manifestly not “held in community” by the Defendants. Nor does it compensate Defendants jointly for the “manufacture and use” of Refined Coal. It is a handling fee, paid *by* the Refined Coal facility and *to* the power plant operator, for the transportation and delivery of raw coal. That it may increase if there is more Refined Coal usage does not make it a shared pecuniary interest. *See St. Joseph Hosp*, 94 S.W.3d at 528 (applying Restatement approach and holding that entities in a supply chain do not have a “community of pecuniary interest” simply because they all stand to benefit from increased sales of the end product).

Fourth, Plaintiffs have not supported the assertion that the Refined Coal LLCs and the power plant operators had an “equal right of control” over the “direction of the enterprise.” The Restatement approach to joint enterprise, which the Federal Circuit adopted by *Akamai V*, sets a high bar. In *IOENGINE, LLC v. PayPal Holdings, Inc.*, No. 18-452-WCB, 2019 WL 330515 (D. Del. Jan. 25, 2019), Judge Bryson of the Federal Circuit, sitting by designation, held that parties can be “partners” and “collaborators” but still not have “an equal right to a voice in the direction of the enterprise.” 2019 WL

330515, at *3 (citing *Akamai V*, 797 F.3d at 1023). As noted above, Defendants here expressly disclaimed any such partnership.

Outside of the patent context, the Seventh Circuit has held that there is no mutual control unless each party can “force the other” to enter into transactions or “compel the use of each other’s employees or resources.” *Trustmark Ins. Co. v. Gen. & Cologne Life Re of Am.*, 424 F.3d 542, 548 (7th Cir. 2005). And in *Servicios Especiales*, the district court noted that even “day-to-day operational control” by one party over the other would be *insufficient* to prove “*mutual* control.” 791 F. Supp. 2d at 634 (emphasis added); *see also Eagle Star Ins. Co. v. Bean*, 134 F.2d 755, 758 (9th Cir. 1943) (“If the will or pleasure of one party is to control the others in these respects, there is no joint adventure.”). Plaintiffs have not come close to making the required showing of mutuality. *See* D.I. # 135, Pl. Opp. Br. 104–107.

Instead, Plaintiffs assert (in a footnote) that “(a) the power plants have the right to bypass the Refined Coal facility and to burn unrefined coal instead; and (b) the Refined Coal facility has the right to cease providing Refined Coal on the basis of either operational or regulatory requirements.” *Id.* 106 n.31. This is true (as it would be for nearly any vendor-customer relationship), but it is irrelevant under the law of joint enterprise. What matters for this case is whether: (a) the *power plant operators* can force the Refined Coal facilities to make Refined Coal; and (b) the *Refined Coal LLCs* can force the power plants to burn it. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3. Plaintiffs' Joint Infringement Claims Fail as a Matter of Decided Law.

As explained above in Sections IV.A.1 and IV.A.2, Plaintiffs have failed to establish the facts upon which they base their claim that Arbor and Portage directly infringe. Summary judgment is appropriate on that basis.

But even if Plaintiffs had proven all of the joint infringement allegations in their Second Amended Complaint, the district court in the Chem-Mod Case held that identical allegations against other Refined Coal manufacturers were insufficient to state a claim for direct infringement. D.I. # 108, Def. PFF ¶¶ 760–61; D.I. # 90-119, Mark Decl. (Apr. 16, 2019) Ex. 123, Memorandum Opinion and Order at 6. Thus, to the extent that this Court finds that any facts have been established, Plaintiffs' claims should nonetheless be dismissed. For the reasons stated in Defendants' opening brief, this Court should abide by the final judgment of the district court in the Chem-Mod Case, from which Nalco did not appeal and which the Federal Circuit did not disturb. *See* D.I. # 107, Def. Op. Br. 64–69. There is no genuine dispute of material fact with respect to Defendants' argument

that the prior judgment collaterally estops Plaintiffs from pursuing their joint infringement claims here.

First, Plaintiffs fail to raise a dispute as to whether the operative facts are identical. *See* D.I. # 135, Pl. Opp. Br. 113–17. Plaintiffs state only that that in the Chem-Mod Case, the fact of “‘control’ . . . derived *principally* from the qualification” of the parties “for the Section 45 tax credit program.” *Id.* at 114 (emphasis added). But Plaintiffs do not dispute that the *other* facts alleged in the Chem-Mod Case (*e.g.*, the Refined Coal LLCs’ “condition[ing] the receipt of a benefit by the operators of the coal-fired power plants, on the use of the Chem-Mod Solution) are the *only* facts alleged against Arbor and Portage here. *Id.* at 115 (reproducing chart showing allegations). If conditioning a contractual benefit on the use of Refined Coal *and* participating in the “Section 45 tax credit program” were together insufficient to state a claim, then allegations regarding only the first half of that formula cannot suffice.

Second, Plaintiffs are incorrect that the district court’s ruling on joint infringement in the Chem-Mod Case was not “essential” to the district court’s judgment in favor of the Refined Coal LLCs. D.I. # 135, Pl. Opp. Br. 117–19. That may have been true at the time the district court first entered judgment, but there is no dispute that the Federal Circuit later “reversed the N.D. Ill. court’s finding of no direct infringement” based on use of the Chem-Mod Solution. *Id.* at 119. As a result, Nalco was able to bring additional cases against users of the Chem-Mod Solution, including these cases. The district court’s originally “alternative” ruling on joint infringement is now the only aspect of the judgment still in force, and it works to bar Plaintiffs’ assertions on a single issue—joint infringement—here.

Third, Plaintiffs suggest that they may re-litigate the issue of joint infringement because it was not “fully litigated” to a “final judgment.” See D.I. # 135, Pl. Opp. Br. 119–122. But there is no dispute that the district court entered a final judgment and that, with respect to the joint infringement issue, Nalco elected not to appeal. D.I. # 135, Pl. Opp. Br. 121. That election sealed Nalco’s fate. See *Miller Brewing Co v. Joseph Schlitz Brewing Co.*, 605 F.2d 990, 996 (7th Cir. 1979) (“To be ‘final’ for the purposes of collateral estoppel the decision need only be immune, as a practical matter, to reversal or amendment.”); see also D.I. # 108, Def. PFF ¶ 773; *Nalco Company v. Chem-Mod LLC*, 883 F.3d 1337, 1357 (Fed. Cir. 2018) (“[W]e reverse the district court’s dismissal of Nalco’s 4AC, except with respect to the district court’s dismissal of Nalco’s allegations of divided infringement for commercial applications, which we do not disturb.”).

Fourth, Plaintiffs argue that any collateral estoppel cannot apply to Hazelmere, because Hazelmere was not a party to the Chem-Mod Case. See D.I. # 135, Pl. Opp. Br. 122–23. Hazelmere certainly *should* have been named as a party, given its status as the assignee of the patent. See *supra* § I.C. [REDACTED]

[REDACTED] *Kunzelman v. Thompson*, 779 F.2d 1172, 1178 (7th Cir. 1986) (citing *Donovan v. Estate of Fitzsimmons*, 778 F.2d 298, 301 (7th Cir. 1985) (For purposes of collateral estoppel, “a successive party may be in privity with a named party that represents the same legal interests. Strict identity of the parties is not necessary to achieve privity.”) Hazelmere and Nalco’s interests are aligned insofar as they both have the same interest in enforcing the putative rights that Hazelmere granted to Nalco.

Finally, Defendants are not barred from raising this defense. “The failure to plead an affirmative defense in the answer works a forfeiture only if the plaintiff is harmed by the defendant’s delay in asserting it.” *Matthews v. Wisconsin Energy Corp., Inc.*, 642 F.3d 565, 570 (7th Cir. 2011) (quoting *Carter v. United States*, 333 F.3d 791, 796 (7th Cir. 2003); *see also Williams v. Lampe*, 399 F.3d 867, 871 (7th Cir. 2005) (“[W]here the plaintiff has an opportunity to respond to a late affirmative defense, he cannot establish prejudice merely by showing that the case has progressed significantly since the defendants answered his complaint.”). In *Venters v. City of Delphi*, 123 F.3d 956, 968 (7th Cir. 1997), cited by Plaintiffs at D.I. # 135, Pl. Opp. Br. 109, the court held that failure to plead an affirmative defense “can be harmless” if “the record confirms that the plaintiff had adequate notice of the defense and was not deprived of the opportunity to respond.” Under *Blaney v. United States*, 34 F.3d 509, 512–13 (7th Cir. 1994), opposition briefing can provide the plaintiff its opportunity to address a legal defense first raised by motion.

In the cases Plaintiffs cite, prejudice was manifest because the untimely-raised defense affected important case deadlines. *See, e.g., Extreme Networks, Inc. v. Enterasys Networks, Inc.*, No. 3:07-cv-00229-bbc, 2007 WL 5448209, at *2–3 (W.D. Wis. Dec. 31, 2007) (defense raised after deadline for filing relevant expert reports); *Am. Nat. Bank & Tr. Co. of Chicago v. Reg’l Transp. Auth.*, 125 F.3d 420, 429–30 (7th Cir. 1997) (defense raised for first time in post-trial briefing, despite defendant’s “ample basis” to raise it for trial); *Moriarty v. Hills Funeral Home, Ltd.*, 93 F. Supp. 2d 910, 920 (N.D. Ill. 2000), *rev’d on other grounds by Moriarty v. Pepper*, 256 F.3d 554 (7th Cir. 2001) (collateral estoppel defense raised only after court entered summary judgment on plaintiffs’ claim).

Here, Plaintiffs have had a full opportunity to brief the point, by spending more than 11 pages on the merits of collateral estoppel. *See* D.I. # 135, Pl. Opp. Br. 112–23.

In *Moriarty*, the court noted that the defendant could have avoided prejudicing the plaintiff “*either* by seeking leave to amend [its] answer or *simply by arguing the point in his summary judgment motion.*” *Moriarty*, 93 F. Supp. 2d at 920 (emphases added).

Defendants here did just that, in addition to disclosing the details of their theory in interrogatory responses, which Plaintiffs do not dispute. D.I. # 134, Def. Resp. to Pl. PFF ¶ 863.

B. Plaintiffs Fail to Support the Assertion That Arbor and Portage Had the State of Mind Needed for Indirect Infringement.

Defendants’ opening brief explains that summary judgment should be granted dismissing all of the indirect infringement claims against Arbor and Portage because they lacked the requisite intent. *See* D.I. # 107, Def. Op. Br. at 69–71. The parties agree that “[i]ndirect infringement, whether induced or contributory, requires” at least “knowledge of the underlying direct infringement.” *See* D.I. # 135, Pl. Opp. Br. 125. “[K]nowledge of the existence of the patent-in-suit” is not enough. *Id.*; *accord* D.I. # 107, Def. Op. Br. 69–70. In support of their theory that Arbor and Portage are entitled to proceed to trial on indirect infringement because they had the requisite knowledge of infringement, Plaintiffs make two arguments. Because each fails on its own merits, the Court should grant summary judgment for Defendants on all indirect infringement claims.

First, Plaintiffs assert that “Defendants Weston [WPS] and Columbia [WPL] undisputedly had the requisite state of mind,” then suggest that these Defendants’ knowledge should be imputed to Arbor and Portage. D.I. # 135, PL. Opp. Br. 123–24. Defendants dispute that WPS and WPL ever had the requisite state of mind for indirect

infringement (and Plaintiffs have not accused those Defendants of indirect infringement), but that is beside the point. Plaintiffs cite no authority and no evidence to show how the power plant operators’ putative knowledge would have been communicated to Arbor and Portage. *See id.*

Indeed, the only cited evidence in this section that actually pertains to Arbor and Portage is evidence that (a) they knew about the Nalco–Alstom settlement and (b) two of their witnesses testified about their understanding of the claim term “flue gas.” *See* D.I. # 135, Pl. Opp. Br. 124. Neither fact demonstrates “knowledge of . . . direct infringement”—let alone knowledge of direct infringement caused by Arbor and Portage.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *see also Allvoice Developments U.S., LLC v. Microsoft Corp.*, 988 F. Supp. 2d 1248, 1262–63 (W.D. Wash. 2013), *aff’d*, 612 F. App’x 1009 (Fed. Cir. 2015) (granting summary judgment of no indirect infringement even though plaintiff sent defendant “a copy of a patent infringement complaint” filed against a third party). Nor is there any evidence that Arbor or Portage representatives independently concluded that they were causing infringement.

Second, Plaintiffs assert that Arbor and Portage were “willfully blind” to the power plant operators’ infringement. D.I. # 135, Pl. Opp. Br. 125. In *Global-Tech Appliances, Inc. v. SEB S.A.*, the Supreme Court described the high standard for willful blindness in the context of a claim for induced infringement:

[A]ll [the Courts of Appeal] appear to agree on two basic requirements: (1) the defendant must **subjectively believe** that there is a high probability that a fact exists and (2) the defendant must **take deliberate actions to avoid learning of that fact**. We think these requirements give willful blindness an appropriately limited scope that **surpasses recklessness and negligence**. Under this formulation, a willfully blind defendant is one who takes deliberate actions to avoid confirming a high probability of wrongdoing and who can almost be said to have actually known the critical facts. By contrast, a reckless defendant is one who merely knows of a substantial and unjustified risk of such wrongdoing, and a negligent defendant is one who should have known of a similar risk but, in fact, did not.

Global-Tech Appliances, Inc. v. SEB S.A., 563 U.S. 754, 769–70 (2011) (internal citations omitted) (emphases added). Here, Plaintiffs offer no competent evidence of either element, and further fail to explain how Defendants’ alleged conduct “surpasses recklessness.” D.I. # 135, Pl. Opp. Br. 125.

Plaintiffs doom their indirect infringement claims by failing to identify any subjective beliefs held by Arbor or Portage or any deliberate actions taken by them. *See* D.I. # 135, Pl. Opp. Br. 125–30.¹⁵ In their papers, Plaintiffs state only that “DTE (originally the 100% owner of Portage and Arbor . . .) has admitted that [REDACTED]

[REDACTED] First of all, DTE is not a party, and Plaintiffs offer no basis for attributing this statement to Arbor or Portage. Second, the

¹⁵ The cases Plaintiffs cite demonstrate why Plaintiffs’ claims fail. In *Minemyer v. R-Boc Representatives, Inc.*, No. 07 C 1763, 2012 WL 2155240, at *17 (N.D. Ill. June 13, 2012) (cited by Plaintiffs at 126), the court held that the subjective belief element was satisfied when the defendant “called Mr. Lundeen to ask whether the part he was making infringed a patent.” In *Suprema, Inc. v. Intl. Trade Commn.*, 626 Fed. Appx. 273, 282 (Fed. Cir. 2015) (unpublished) (cited by Plaintiffs at D.I. # 135, Pl. Opp. Br. 126), the court held that a proven “failure to obtain counsel opinion goes to the ‘state of mind’ inducement requirement”—but no such failure has been shown here. And in *Ultratec, Inc. v. Sorenson Commun., Inc.*, 45 F. Supp. 3d 881, 925–26 (W.D. Wis. 2014), the defendant had specifically been told that there was a risk of patent infringement and, as a result, deviated from its usual practice of reviewing patents.

statement is not an “admission”—it is part of a hearsay email sent by a non-party. Third, there is no dispute that the “active mercury reduction additive[s]” at issue in the email—Nalco’s MerControl 7895 and Chem-Mod’s MerSorb—are not themselves patented products.

Plaintiffs also attempt to argue that Defendants “did not obtain an opinion from counsel to determine whether they infringe the ’692 Patent.” D.I. # 135, Pl. Opp. Br. 126

████████████████████ That is not what the cited letter from litigation counsel says, and as a matter of law, Plaintiffs may not draw a negative inference from Defendants’ exercise of the attorney-client privilege. *See Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1345 (Fed. Cir. 2004) (*en banc*) (“[T]he assertion of attorney-client and/or work-product privilege and the withholding of the advice of counsel shall no longer entail an adverse inference as to the nature of the advice.”); 35 U.S.C. § 298 (“The failure of an infringer to obtain the advice of counsel with respect to any allegedly infringed patent, or the failure of the infringer to present such advice to the court or jury, may not be used to prove that the accused infringer willfully infringed the patent or that the infringer intended to induce infringement of the patent.”).

Plaintiffs also seek to attack Defendants’ affirmative position that at all relevant times, Defendants have had a good-faith belief in noninfringement. D.I. # 135, Pl. Opp. Br. 126–30. But the lack of a good-faith noninfringement position is not tantamount to a “subjective belief” in a “high probability” of infringement. *See Global-Tech*, 563 U.S. at 769. Nor does the absence of a noninfringement position constitute “deliberate action” taken “to avoid learning of” infringement. *Id.*

Plaintiffs’ attacks fail in any event. Plaintiffs argue that Defendants were not entitled to rely on Chem-Mod’s assurances of noninfringement and the eventual dismissal with prejudice of Nalco’s claims, but fail to explain why those facts are not indicia of *non*infringement. *See* D.I. # 135, Pl. Opp. Br. 126–27.¹⁶ Plaintiffs also assert that the Federal Circuit reversed the district court’s judgment against Nalco, *id.* 127–128, but that is not even evidence of a “high probability” of infringement—let alone evidence that Arbor and Portage perceived such a risk. At most, the Federal Circuit’s reversal decision is evidence that Nalco stated a *plausible* claim under Rule 8(a) of the Federal Rules of Civil Procedure. Nor was it “willful blindness” “not to question[.]” what the power plant operators thought of the ’692 Patent, *see id.* 127, because Plaintiffs have not shown that Arbor and Portage had any subjective reason to ask them about infringement. Moreover, Plaintiffs acknowledge that Nalco’s on-site representatives never raised the issue of infringement with Arbor, Portage, or their Refined Coal customers, further bolstering Arbor and Portage’s conclusion. D.I. # 135, Pl. Opp. Br. 129–30.

Finally, Plaintiffs rely on *Warsaw Orthopedic, Inc. v. NuVasive, Inc.*, 824 F.3d 1344, 1348, 1350 (Fed. Cir. 2016), which upheld a finding of willful blindness based on the defendant’s “objectively unreasonable” reliance on a noninfringement position that found “no support in the language of [the] claim . . . or its prosecution history.” *Warsaw* is plainly distinguishable, as Defendants’ claim construction and noninfringement

¹⁶ In a footnote, Plaintiffs seek to distinguish *Toshiba Corp. v. Imation Corp.*, 990 F. Supp. 2d 882, 912 (W.D. Wis. 2013), but offer only a distinction without a difference. *See* D.I. # 135, Pl. Opp. Br. 127 n.41. It makes no difference whether Nalco’s claims were dismissed on a motion to dismiss or at summary judgment—either way, Arbor and Portage observed a court order stating that Refined Coal manufacturers could not be held liable for infringing the ’692 Patent. Nalco then allowed that final judgment to stand with respect to direct infringement.

positions here are anchored in the intrinsic evidence of the '692 Patent. *See, e.g.*, D.I. # 107, Def. Op. Br. 41 (“The claim language and the specification of the '692 Patent—as well as the construction the patent owner advocated on appeal to secure reissuance—all point the same way.”); *see also id.* at 41–50, 53–56. For that reason, Plaintiffs cannot analogize these cases to *Warsaw*. *Cf. Mikkelsen Graphic Eng'g Inc. v. Zund Am., Inc.*, No. 07-C-0391, 2011 WL 6122377, at *8 (E.D. Wis. Dec. 8, 2011) (granting summary judgment of no indirect infringement where defendant had “reasonable belief that the claims [would] be construed in a way that renders the acts induced non-infringing”).

C. Plaintiffs Fail to Support the Assertion That Defendants Have Acted Willfully.

Defendants’ opening brief explains why even if Defendants are found to infringe, they are entitled to summary judgment that no such infringement was willful. *See* D.I. # 07, Def. Op. Br. 71–72. In response, Plaintiffs first argue that “Defendants make *no* argument in [this] section with respect to Defendants Columbia [WPL] and Weston [WPS].” D.I. # 135, Pl. Opp. Br. 131 (emphasis in brief). That is incorrect. Defendants’ opening brief specifically incorporates the affirmative evidence of Defendants’ good-faith belief in noninfringement—much (if not all) of which applies to all Defendants. *See* D.I. # 107, Def. Op. Br. 72. Defendants made this showing to put Plaintiffs to their proof. In response, as with indirect infringement, Plaintiffs have utterly failed to raise a genuine issue for trial. *See* D.I. # 135, Pl. Opp. Br. 131–34. Plaintiffs instead appear to rely on having attacked Defendants’ position. *Id.* But the burden of proof is on Plaintiffs, who must show by “clear and convincing evidence” that each Defendant engaged in “egregious infringement behavior.” *Halo Elecs., Inc. v. Pulse Elecs., Inc.*,

136 S. Ct. 1923, 1932 (2016); *Arctic Cat Inc. v. Bombardier Recreational Products Inc.*, 876 F.3d 1350, 1371 (Fed. Cir. 2017).

Plaintiffs' cited evidence fails to support an enhanced damages claim.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

With respect to all Defendants, Plaintiffs assert that Defendants "continued to infringe after being sued and made no effort to ensure they were not infringing." D.I. # 135, Pl. Opp. Br. 132–33 (alleging "no independent, good-faith investigation"). The latter assertion is unsupported by any evidence. Plaintiffs cite a Chem-Mod letter that

provides an opinion of *non*infringement, *id.*, but offer no support for their suggestion that *all Defendants ever did* was read that letter.

The cases Plaintiffs cite for this point (at *id.* 132–34) provide examples of the “evidence of absence,” which Plaintiffs fail to adduce here.

- In *Milwaukee Electric Tool Corp. v. Snap-On Inc.*, 288 F. Supp. 3d 872, 887 (E.D. Wis. 2017), the court cited evidence of the defendant’s failure to “perform adequate research in response to the [threat] letter,” its “ cursory study of the patents,” which “was not corroborated by a prior art search or an infringement analysis,” and its decision not to take a license that had been offered.
- In *Polara Engr. Inc v. Campbell Co.*, 894 F.3d 1339, 1354 (Fed. Cir. 2018), the court cited evidence that the defendant developed its product “to compete with” the plaintiff’s patented product and evidence that the defendant adopted an infringing design “despite being advised by University of Idaho counsel and its lead developer of ‘areas of potential conflict’ and ‘similarities.’”
- In *Velocity Pat. LLC v. FCA US LLC*, 319 F. Supp. 3d 950, 971 (N.D. Ill. 2018), the court cited evidence of the defendant’s refusal to “investigate,” its lack of “process for assessing infringement” claims, and the bad-faith nature of its case assessments.

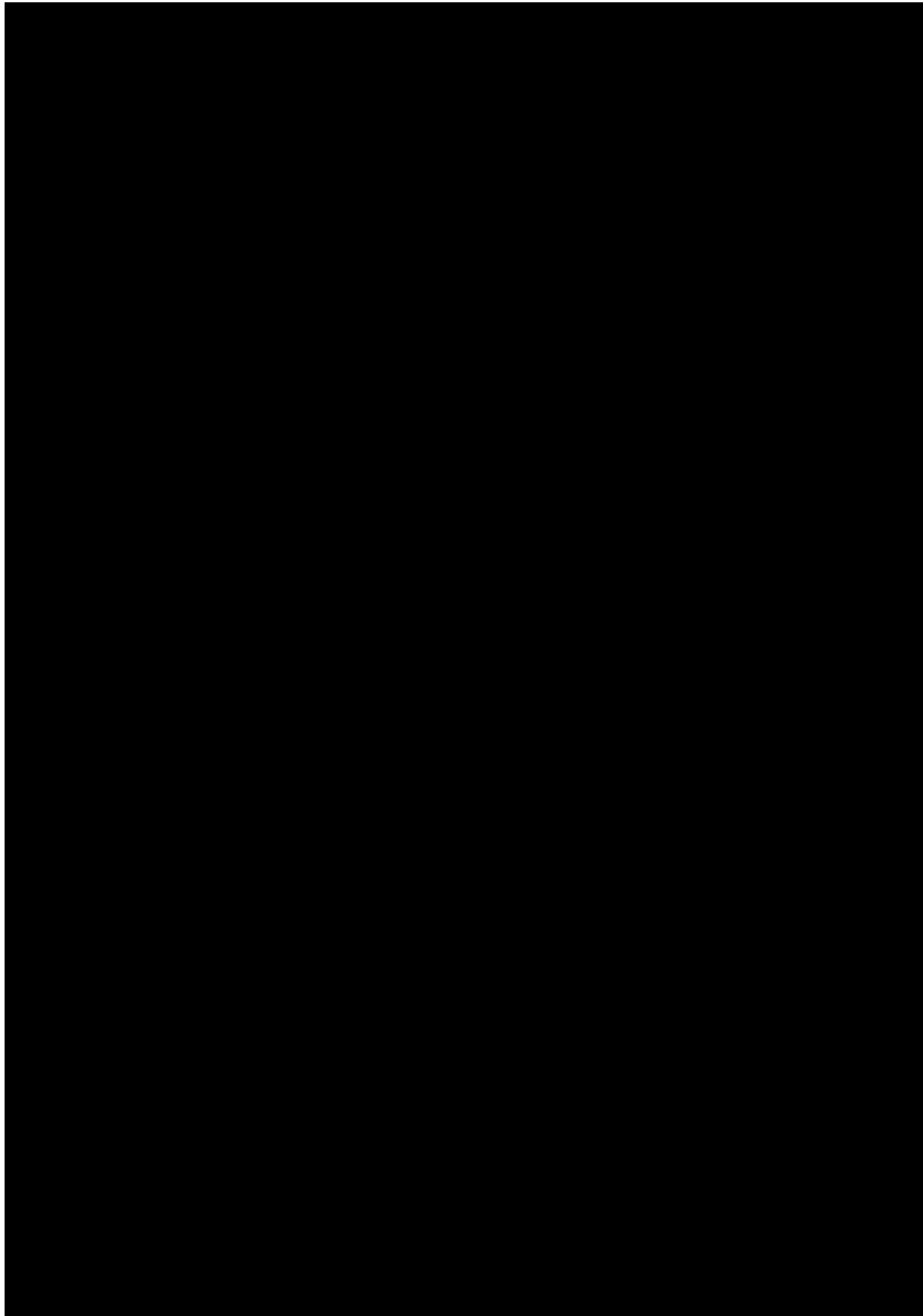
Because Plaintiffs’ proffer does not even begin to approach the evidentiary showing needed to make out a claim for enhanced damages, Plaintiffs’ claim should be dismissed on summary judgment. *See, e.g., AFT Trust v. J&L Fiber Services, Inc.*, 674 F.3d 1365, 1377 (Fed. Cir. 2012) (affirming district court’s dismissal of willful infringement claim on summary judgment).

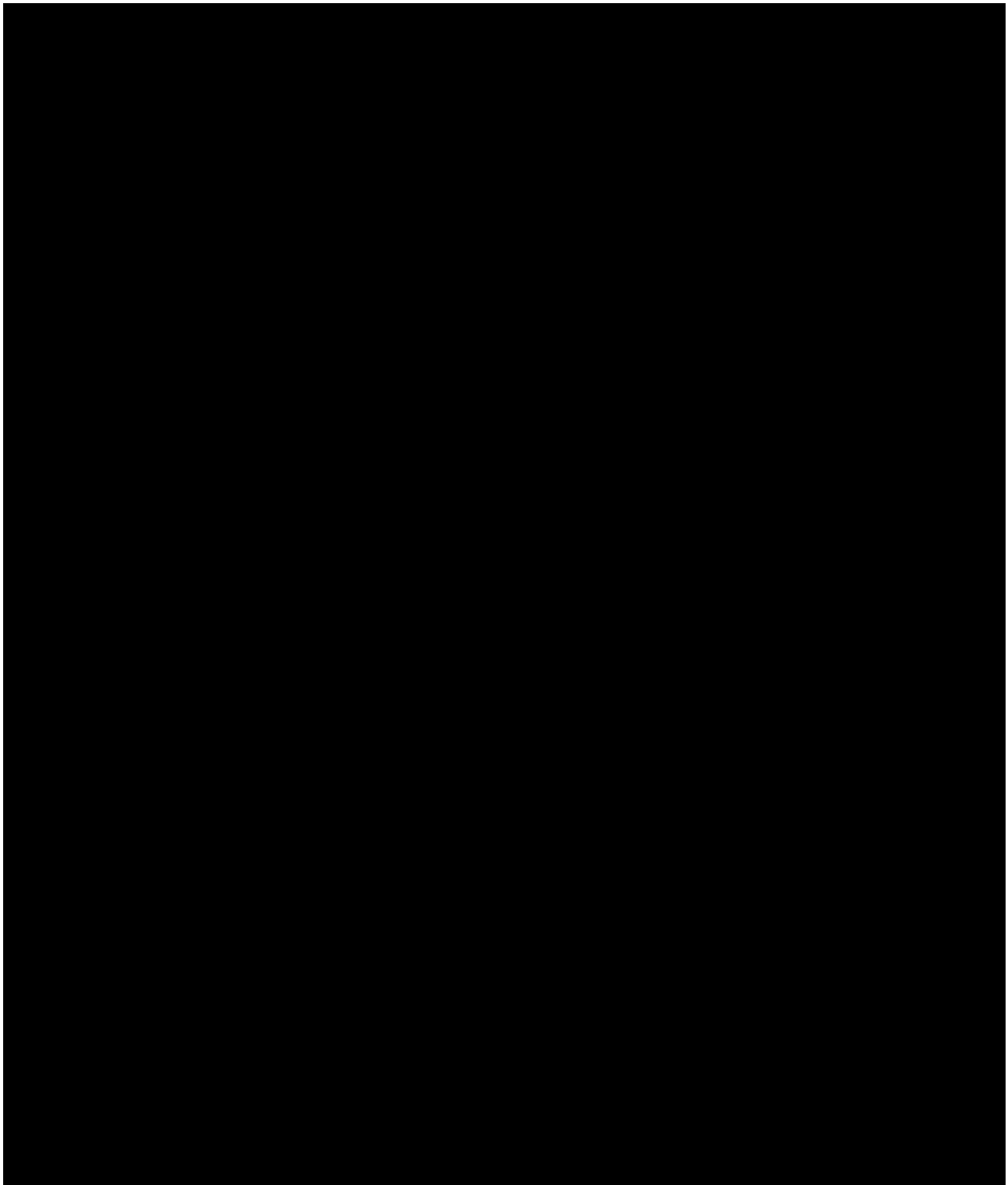
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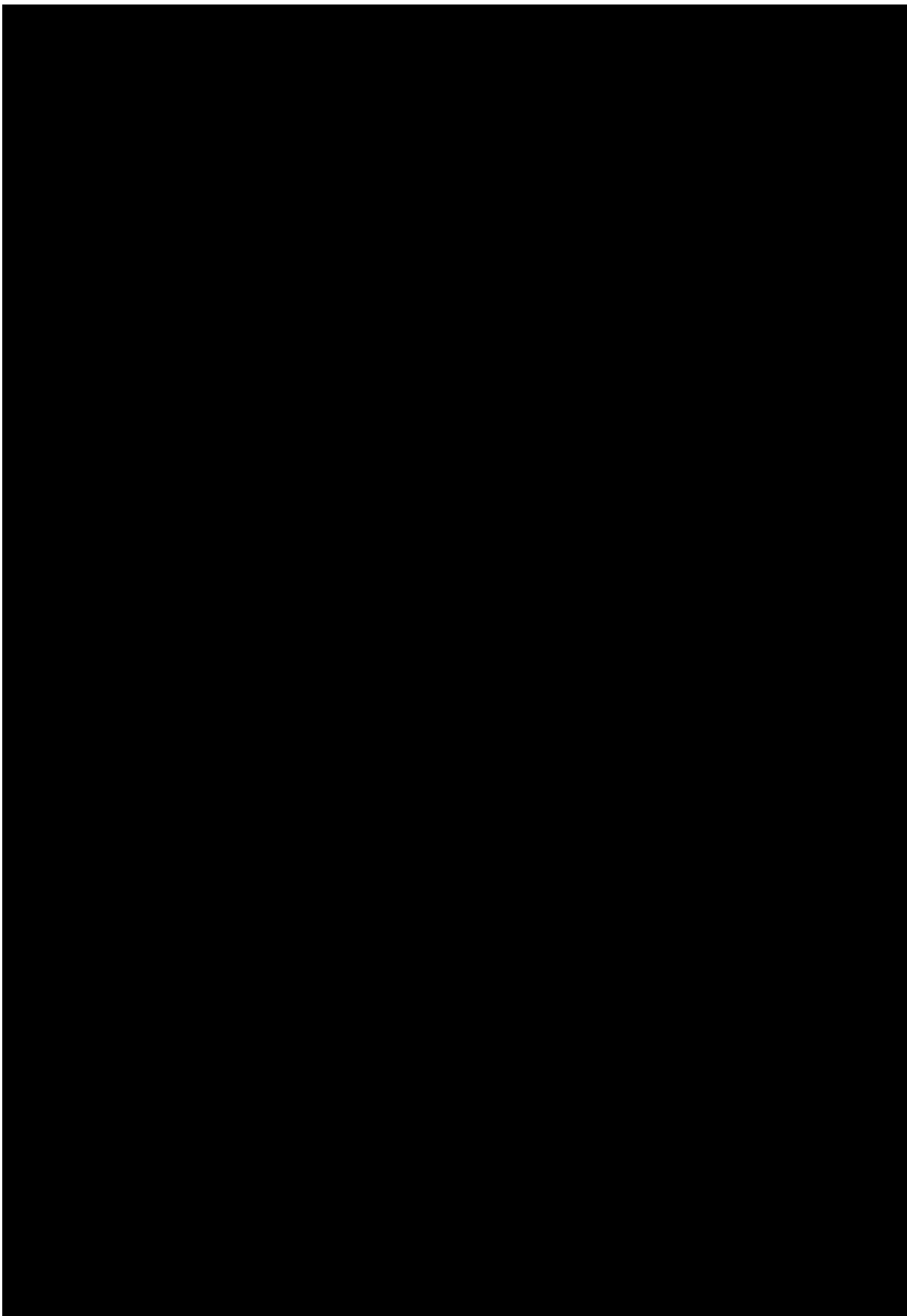
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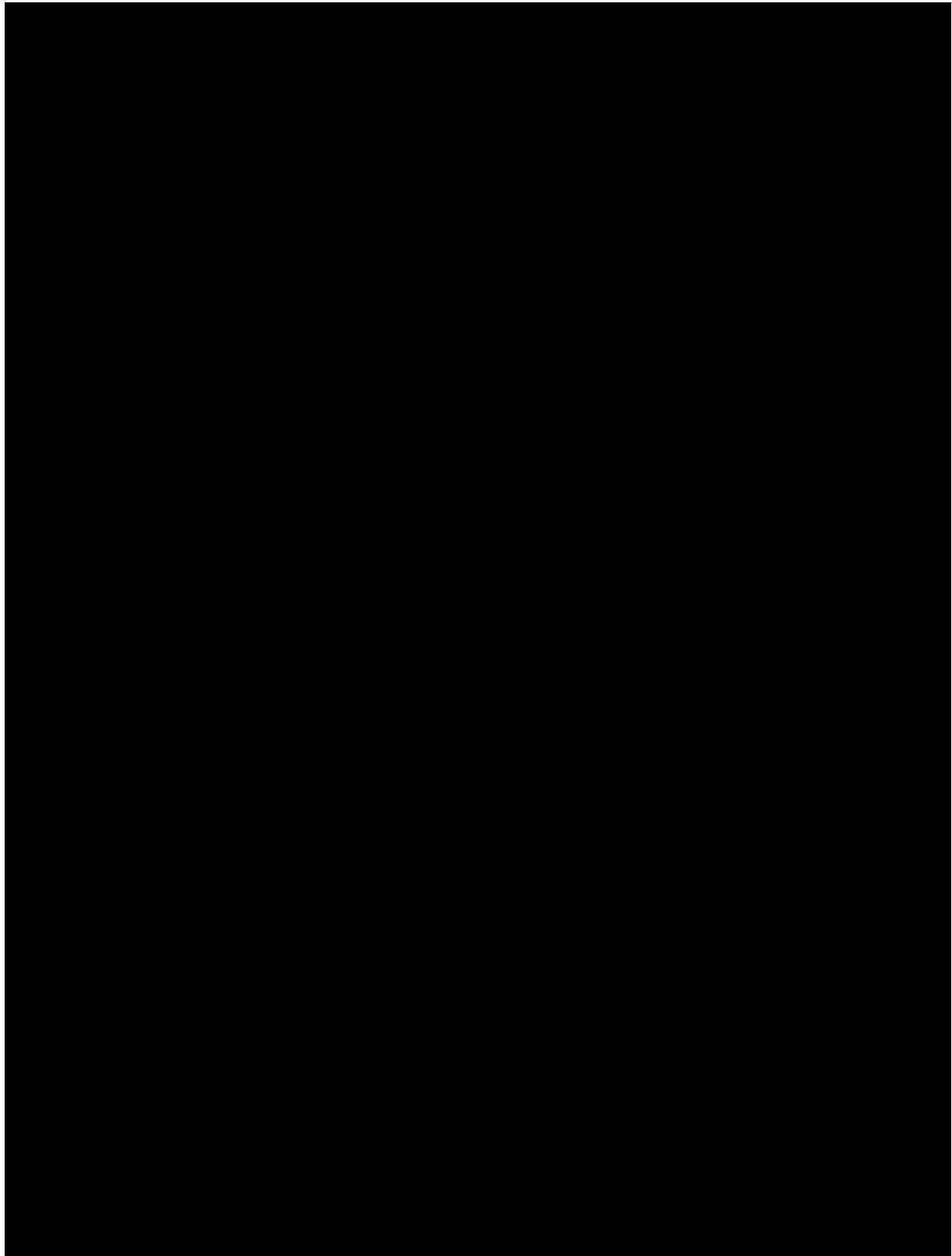


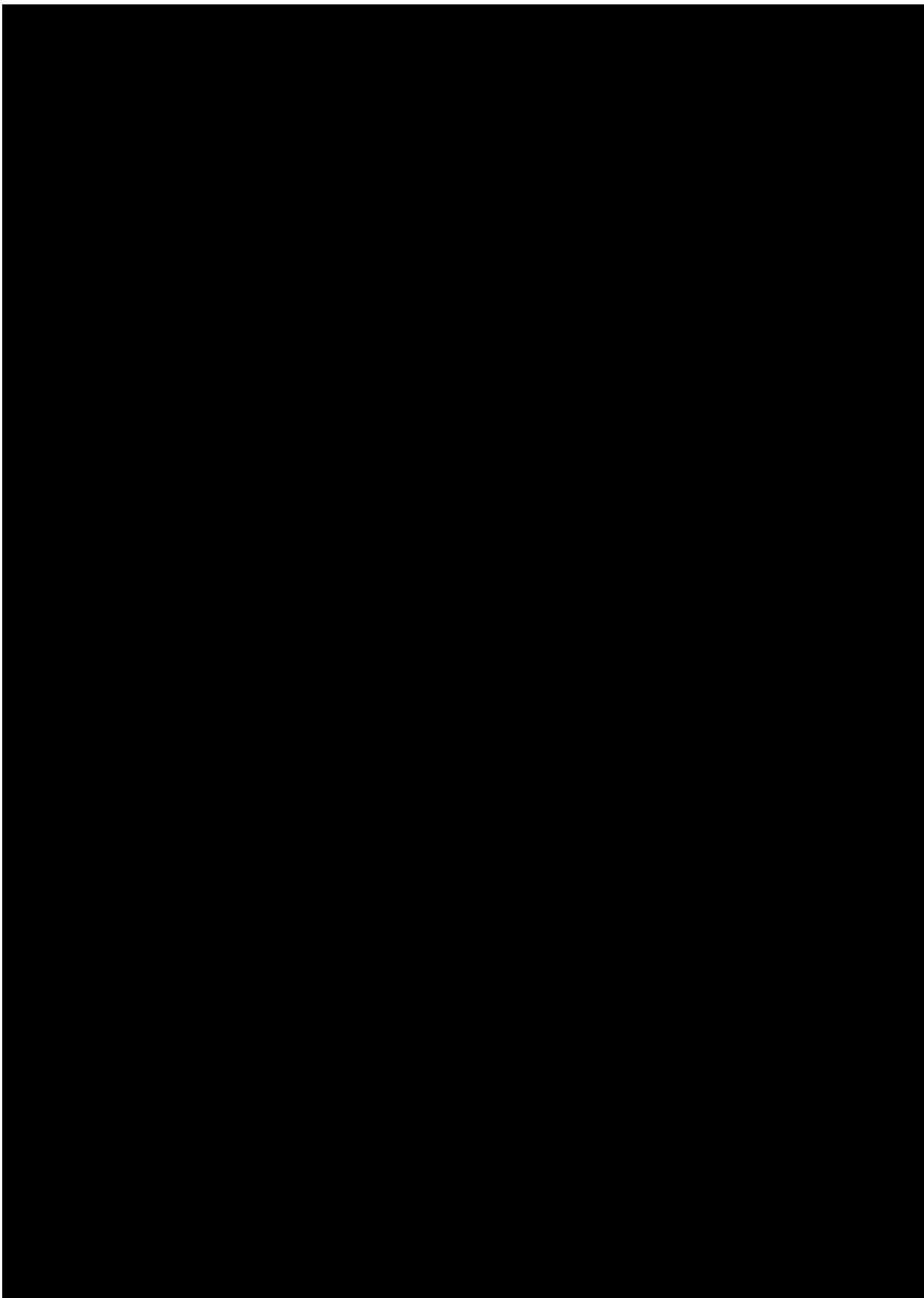


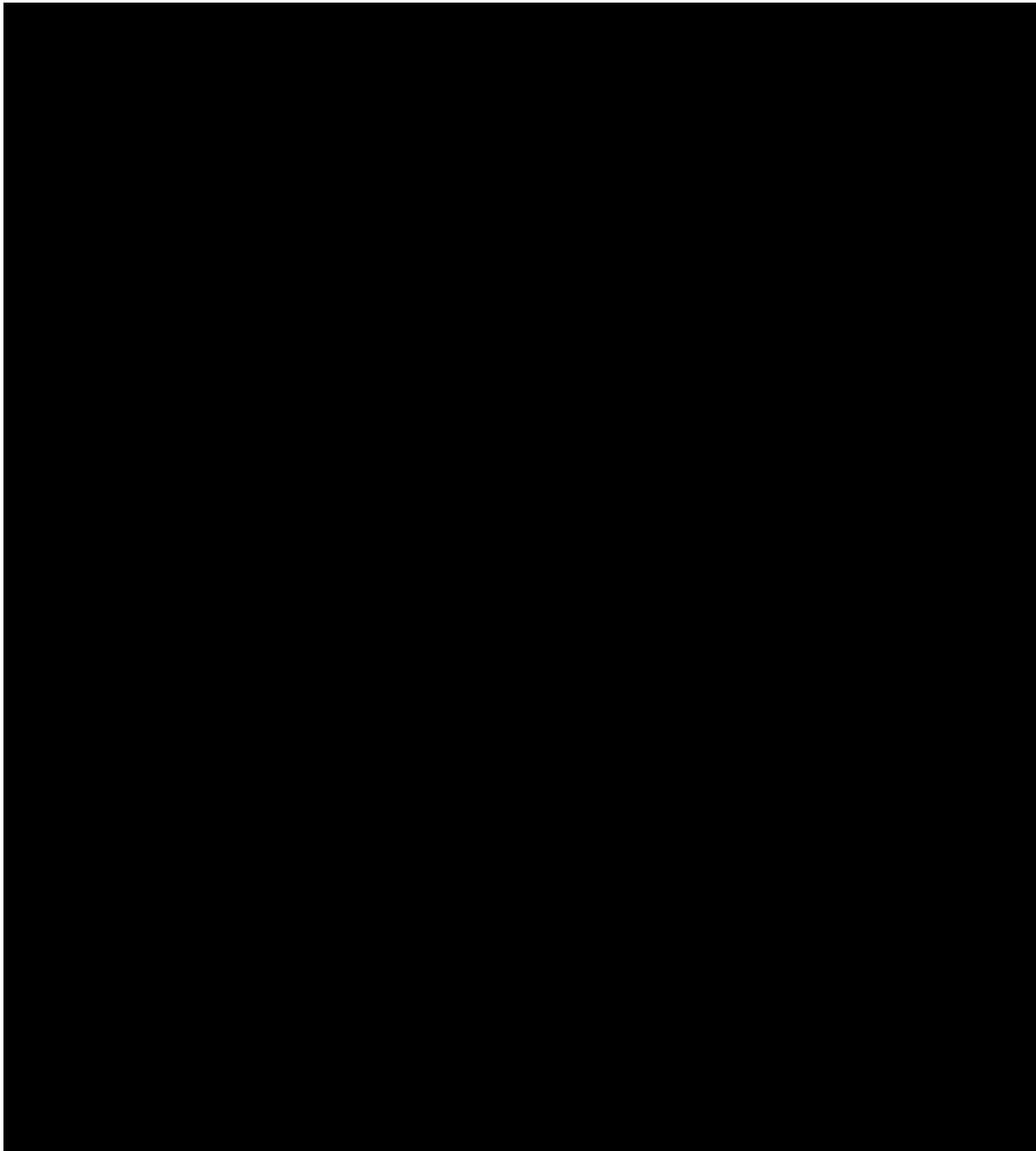
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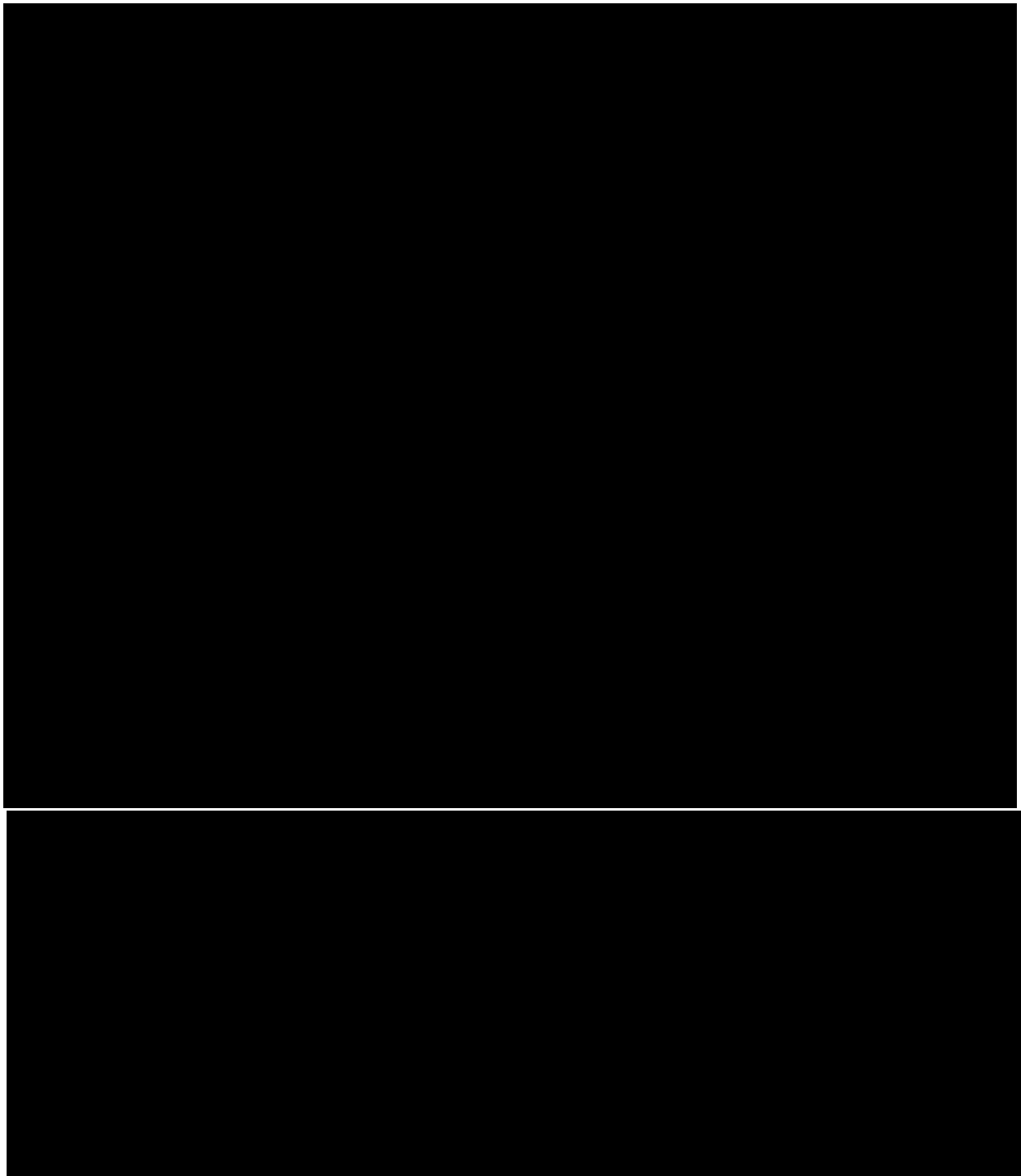


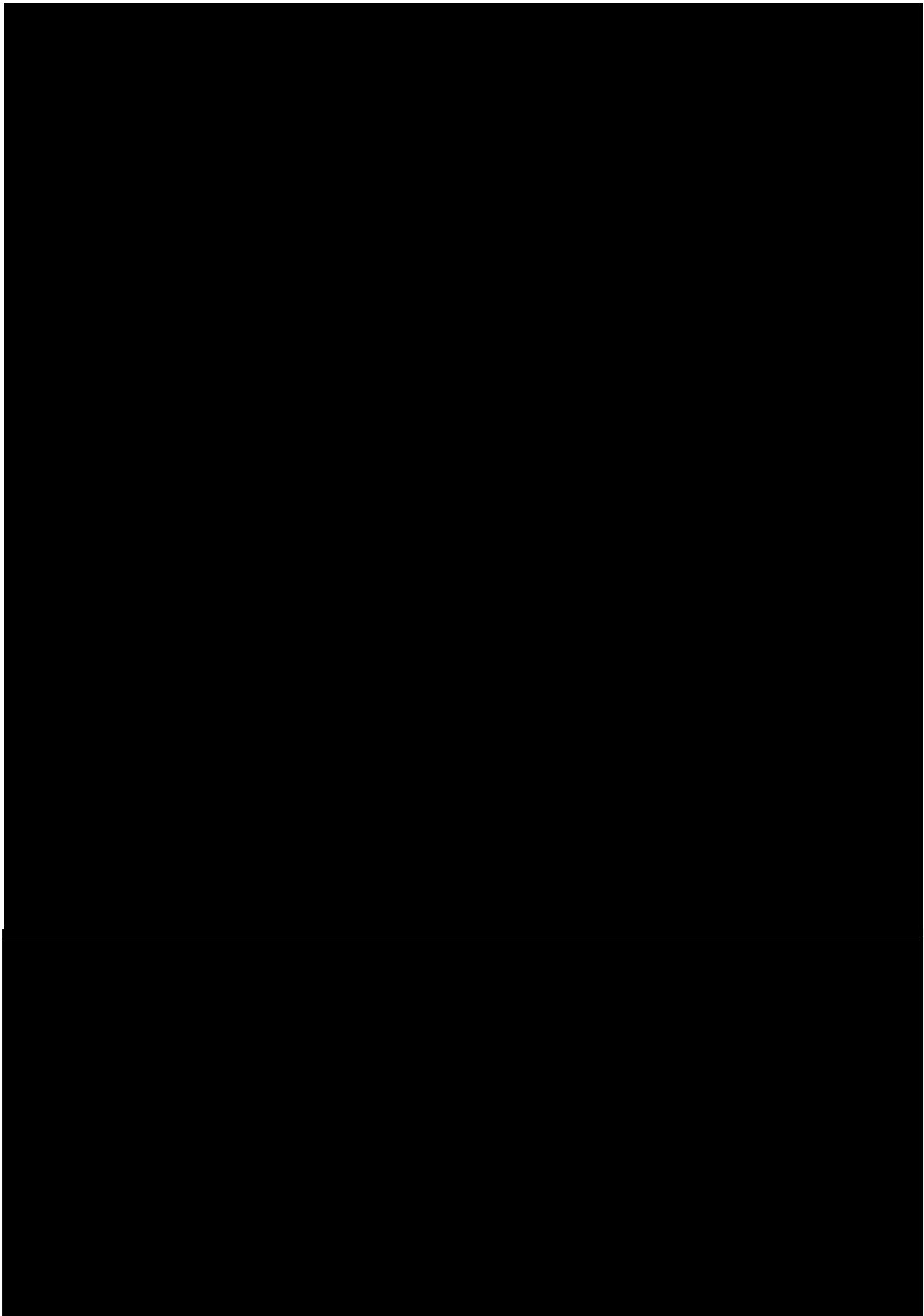


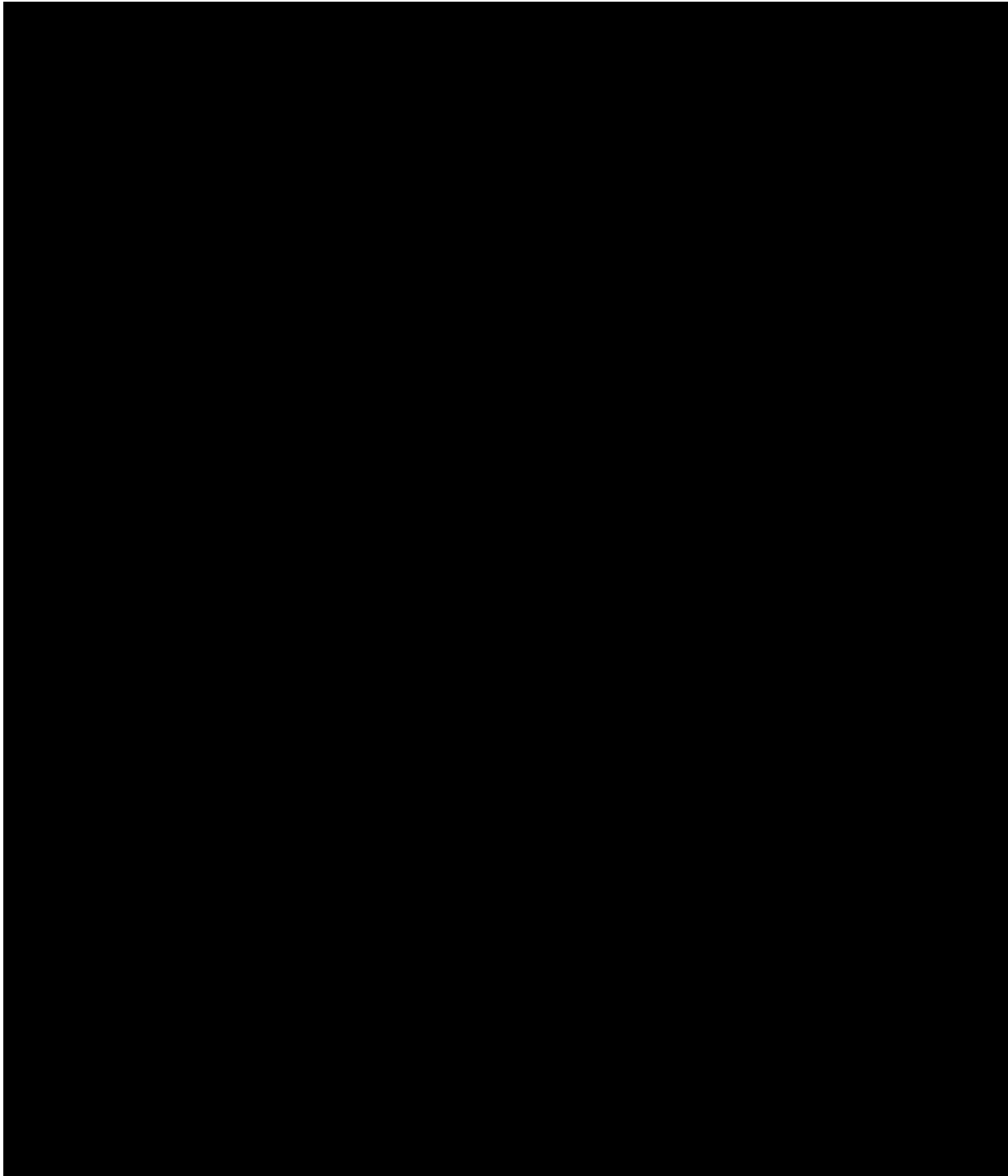




¹⁹ Plaintiffs' real complaint is that "[a]ny value bestowed upon Nalco by virtue of this Agreement is minimal compared to the royalties it is entitled to for Defendants' unlawful infringement." D.I. # 135, Pl. Opp. Br. 150; *see also id.* 153 n.55

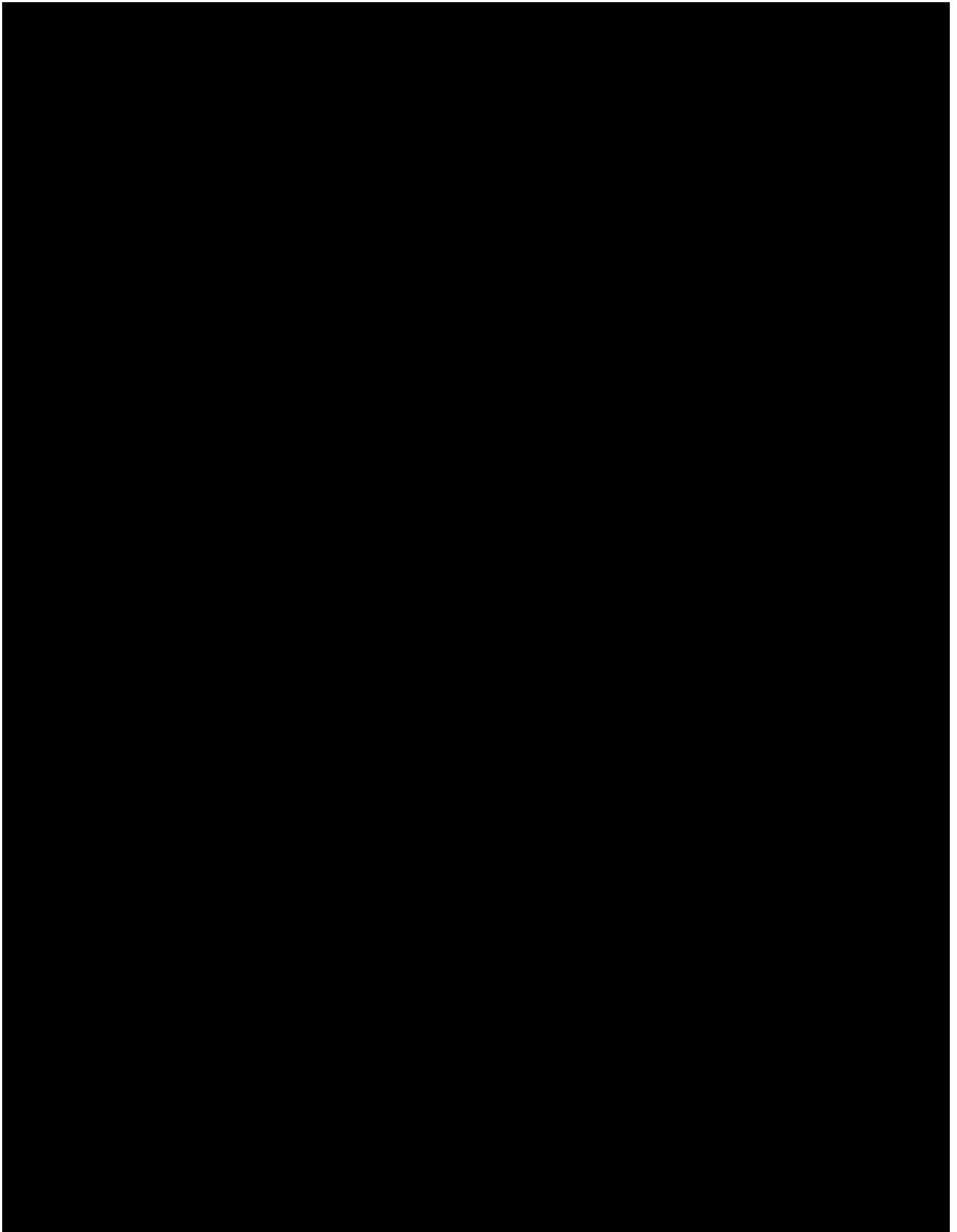


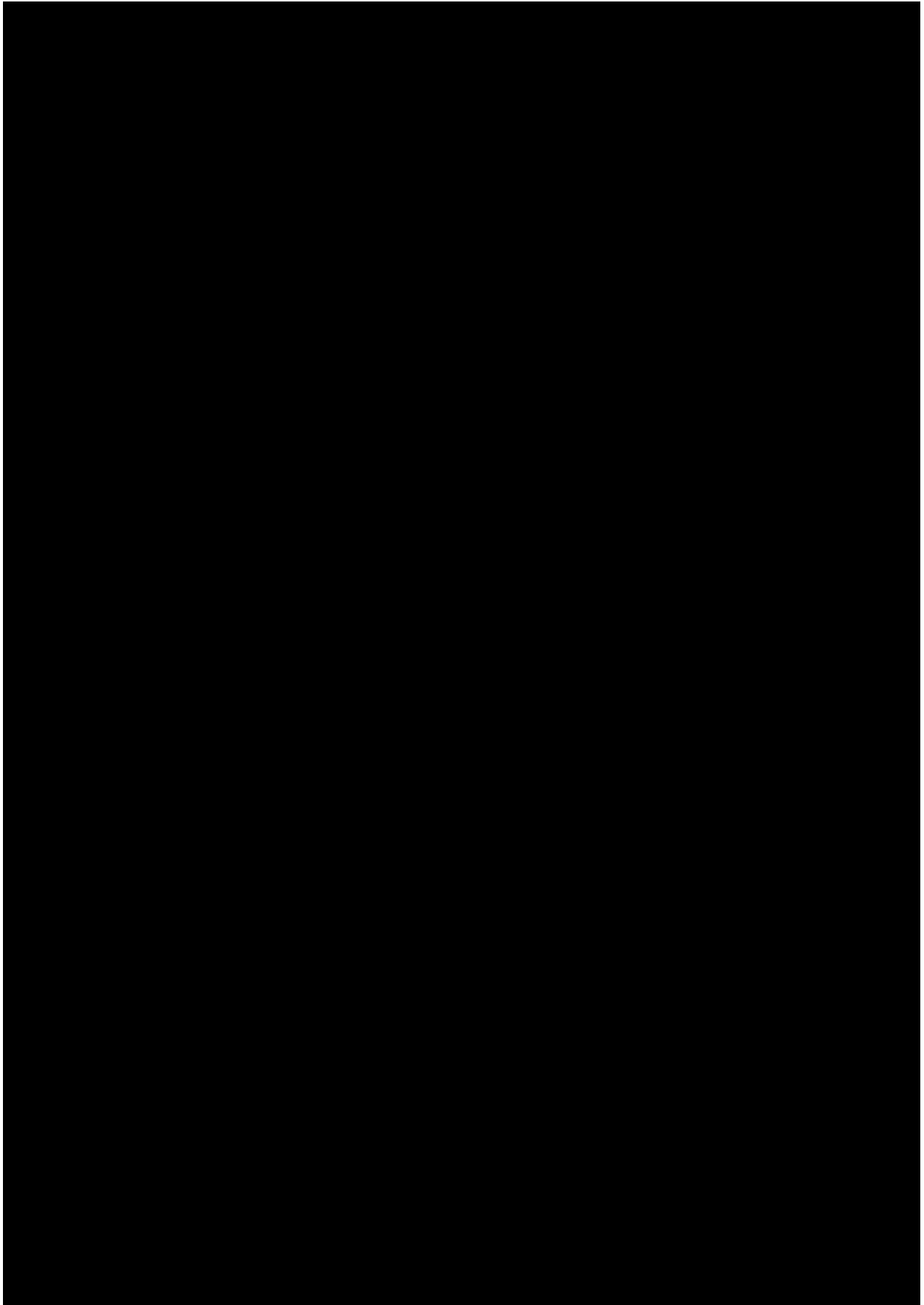




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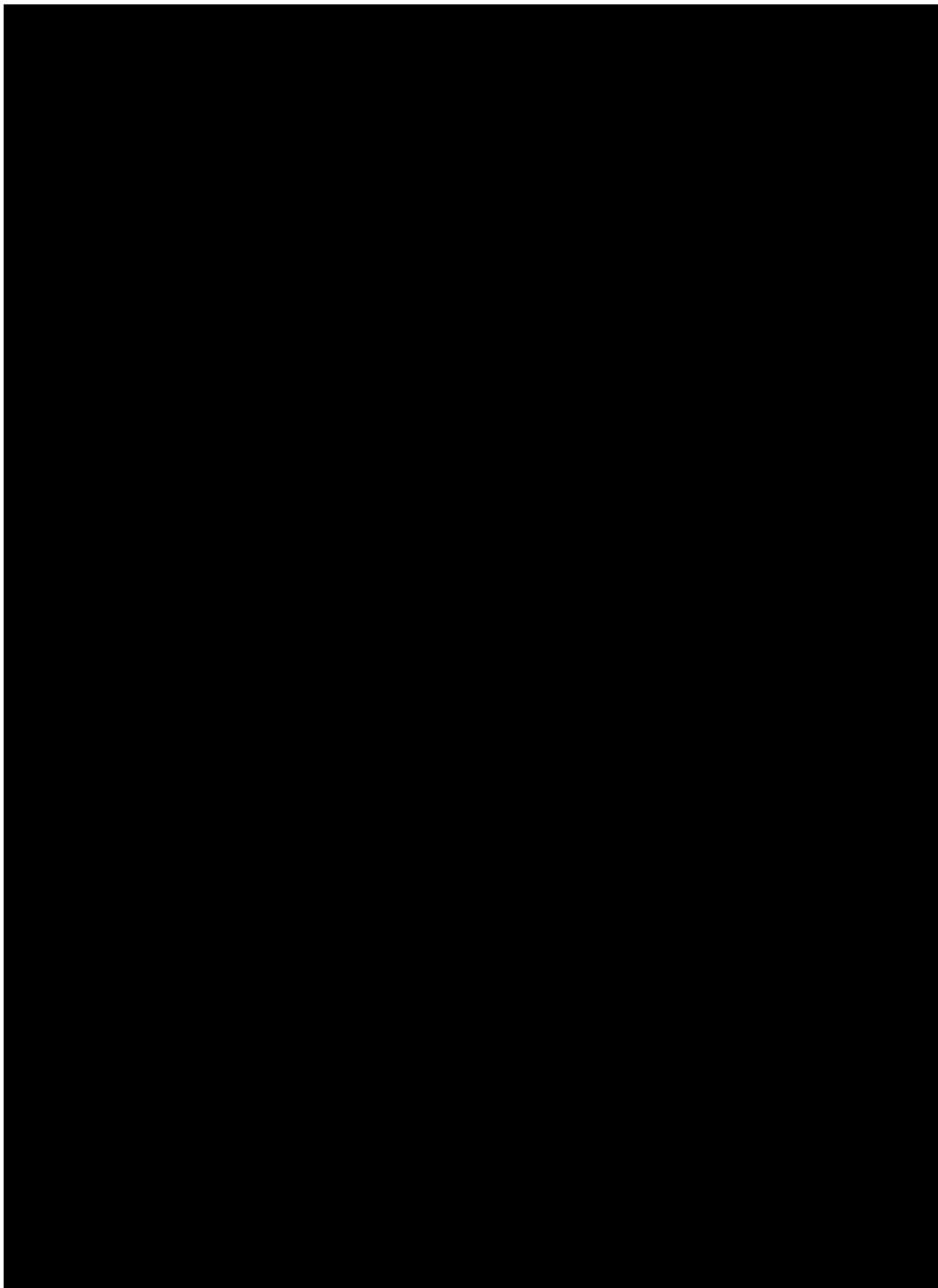
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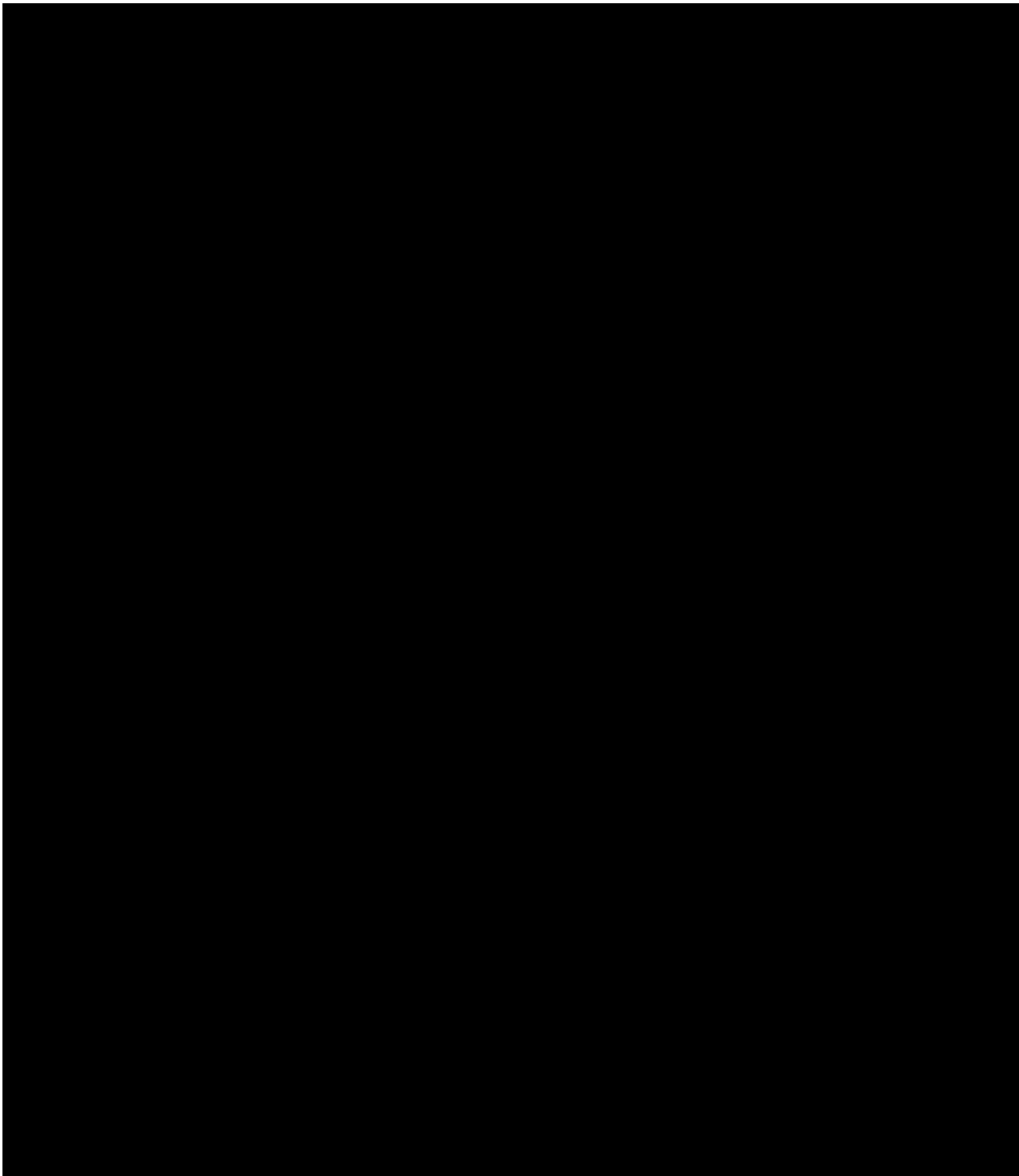




²¹ Even if a beneficiary's mental state were relevant under *Jacobs* and related doctrines, it is unclear how that would help Plaintiffs. Prior to the alleged date of first infringement, Nalco's case against Refined Coal makers and users was ***dismissed with prejudice***. See D.I. # 107, Def. Op. Br. 26–28, 70. That decision was not reversed until almost two years later. *Id.* 26–28. If these Defendants had any “belief” about Refined Coal and the '692 Patent, it was that no license from Nalco would even be necessary. *Cf. Toshiba Corp. v. Imation Corp.*, 990 F. Supp. 2d 882, 912 (W.D. Wis. 2013) (“Defendants simply could not have ‘known’ that they were inducing infringement when they had a judicial declaration telling them that they weren’t.”).

²² Batanian is not an attorney. See D.I. # 66, Batanian Dep. 13:13–15. Indeed, at the time of her testimony, she was not even a Chem-Mod representative capable of binding the company. *Id.* 16:2–3.

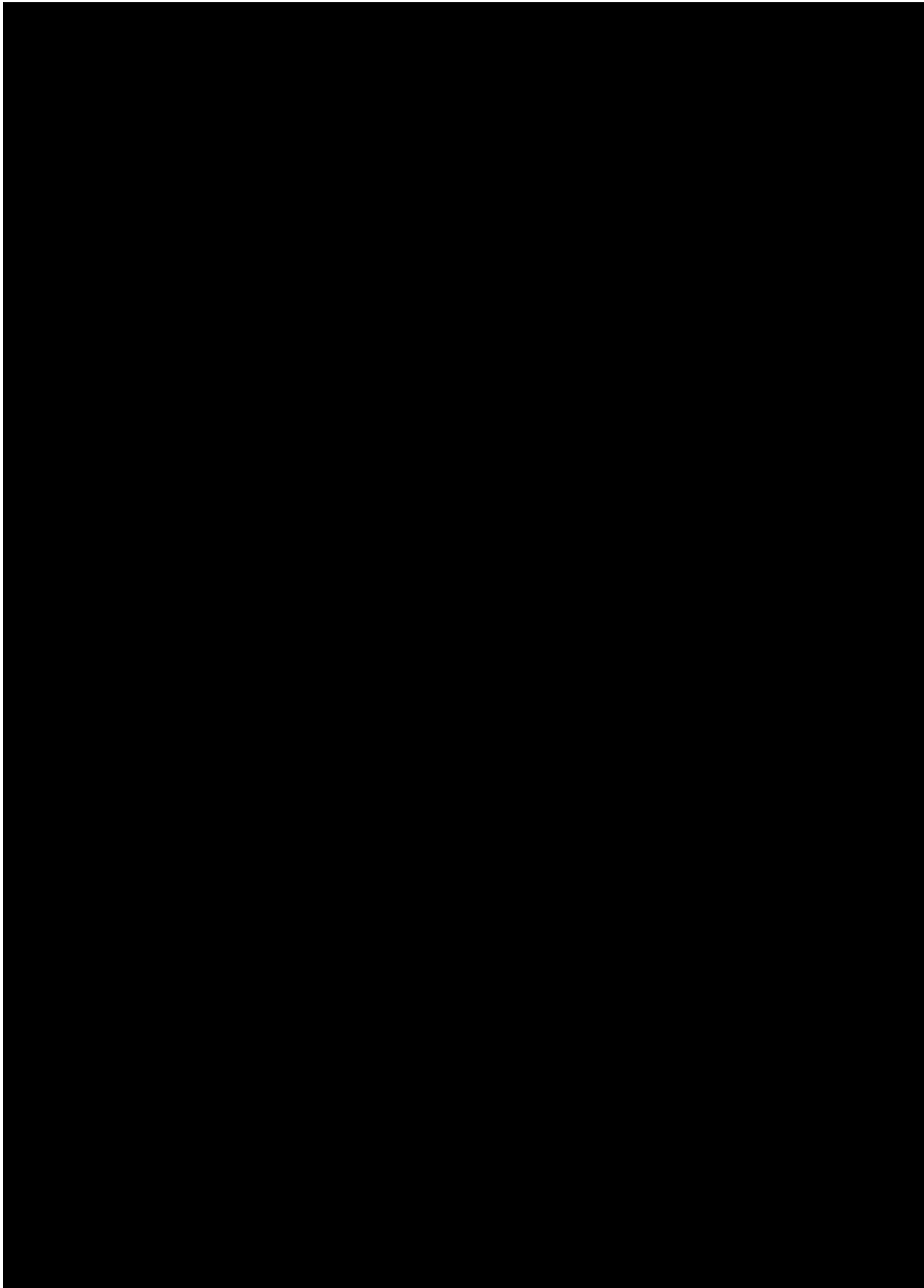


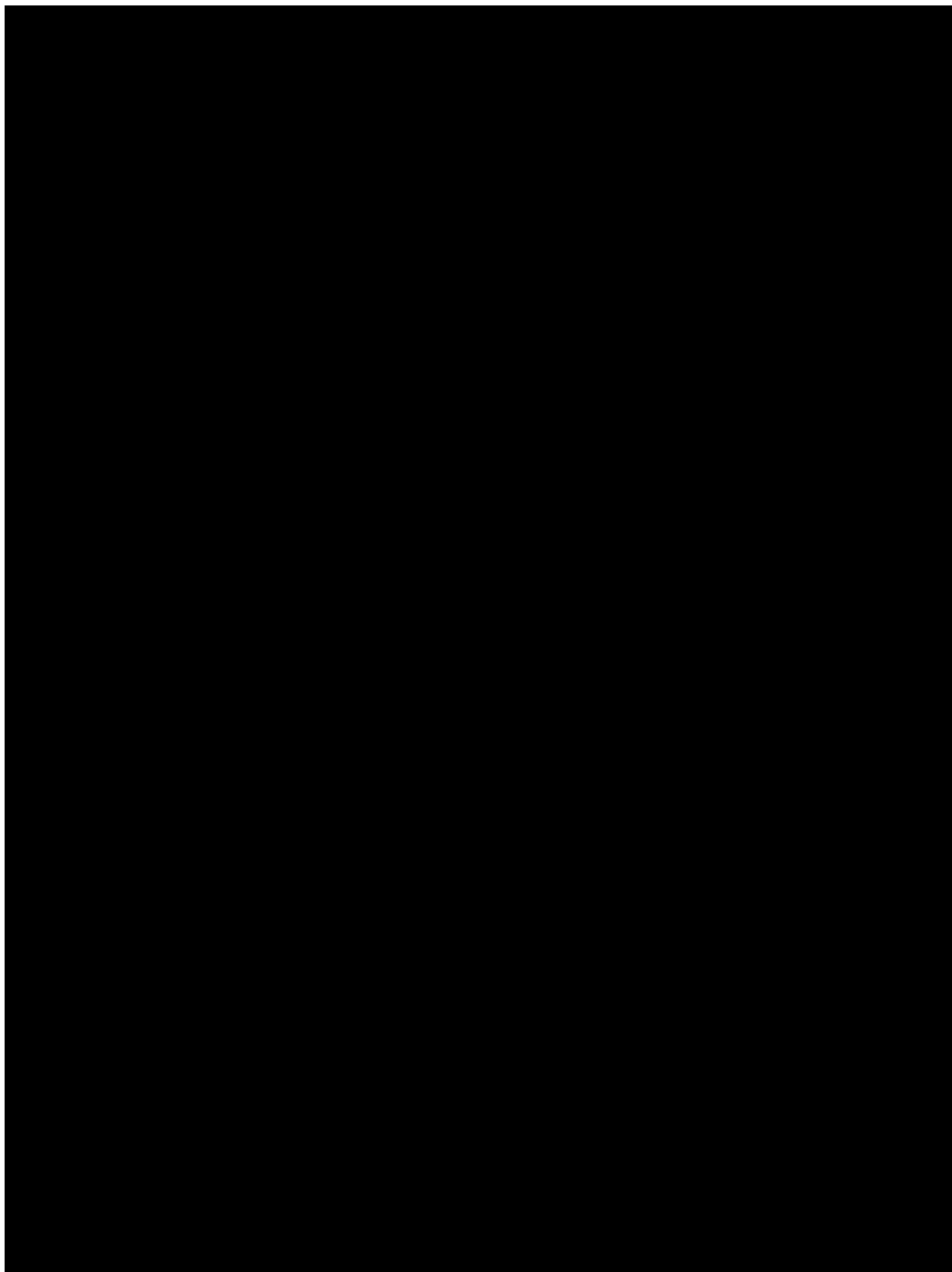


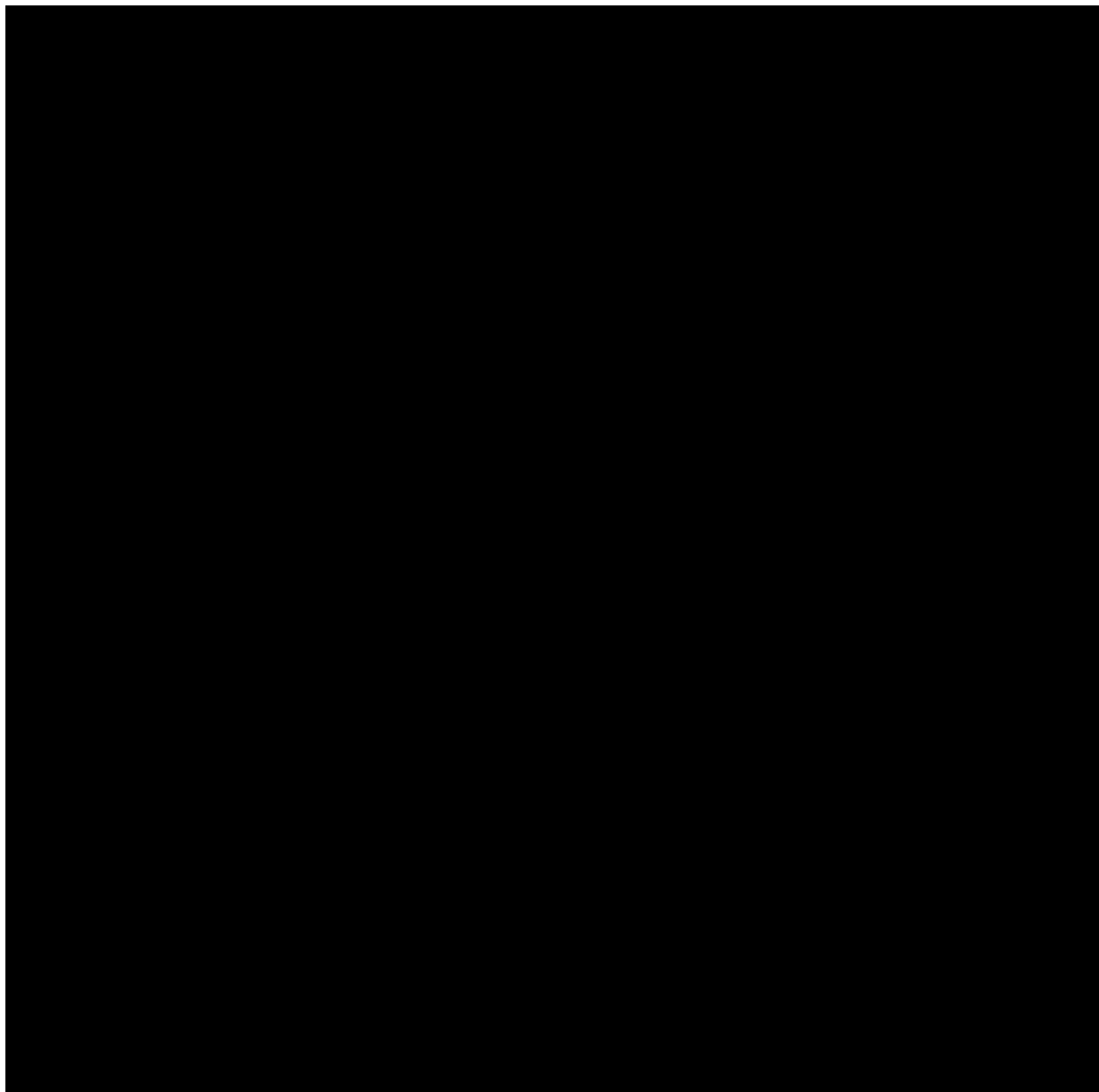
²⁴ Plaintiffs neglect to mention that the Sixth Circuit held that the defendant was in fact licensed. *See Gen. Tire & Rubber Co. v. Firestone Tire & Rubber Co.*, 489 F.2d 1105, 1107 (6th Cir. 1973).

²⁵ Plaintiffs contend that the Columbia Unit 1 license expired on July 15, 2017. *See* Case 280, D.I. # 107, Pl. Op. Br. 89 & n.35.

²⁶ *John Bean* is also distinguishable because the defendant there was relying on communications it had had with the patent owner regarding invalidity. 887 F.3d at 1328. When the patent’s claims were narrowed in reexamination, the defendant’s basis for reliance evaporated. *Id.* at 1327–28. Here, the reexamination decision (and the PTAB’s explicit statements about flue gas) would have strengthened Defendants’ understanding that pre-treatment of coal is not “injecting . . . into the flue gas.”





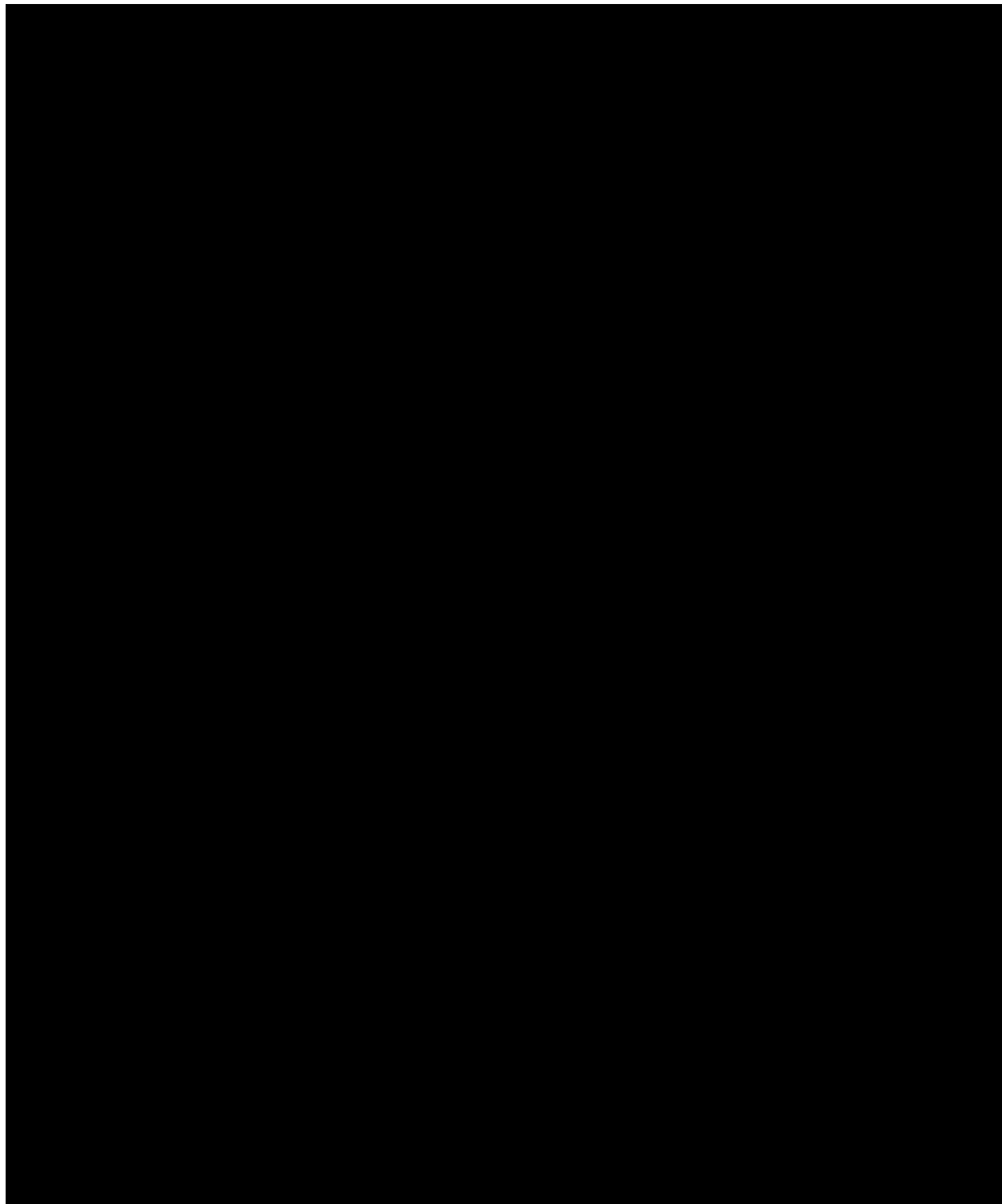


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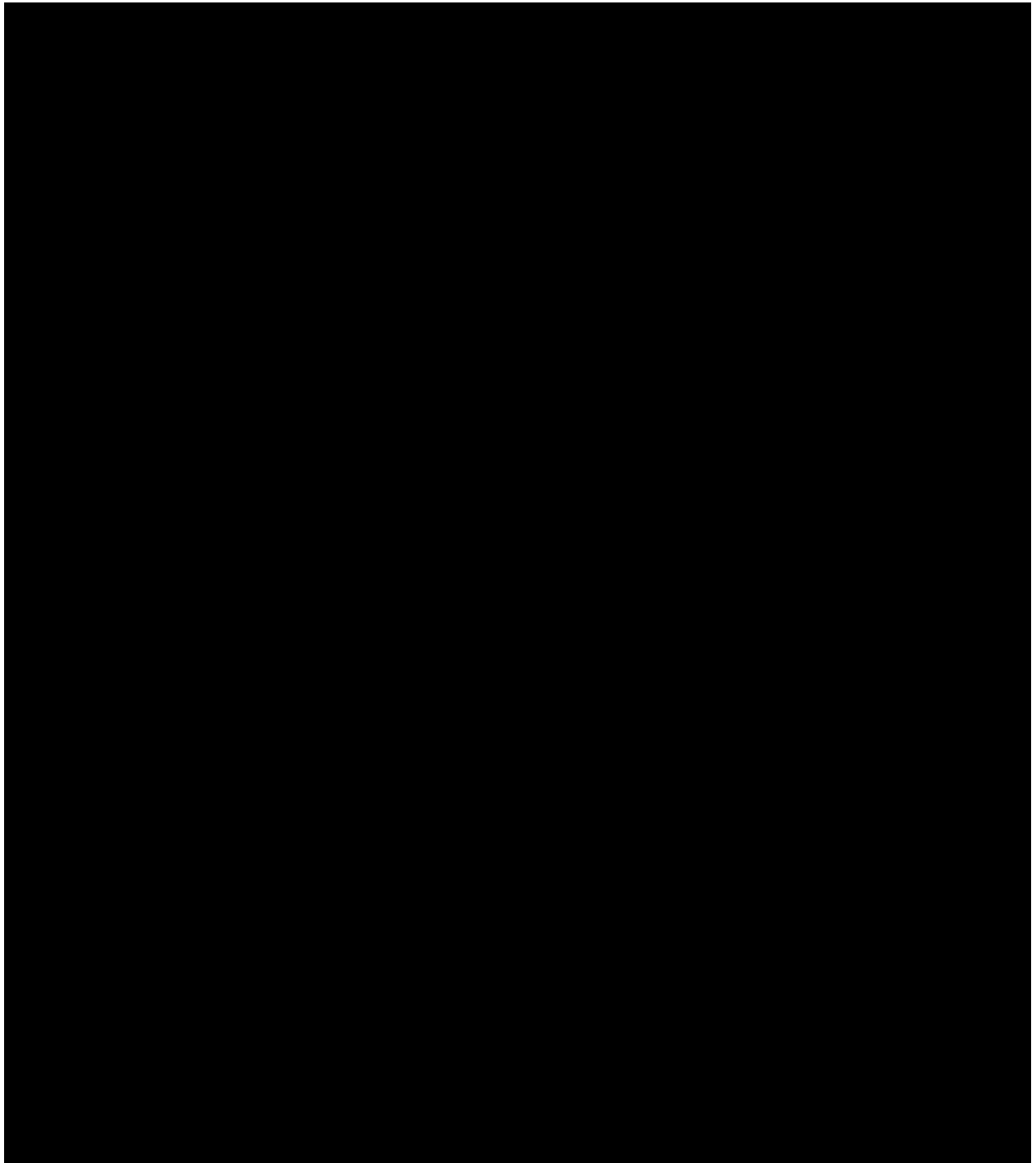
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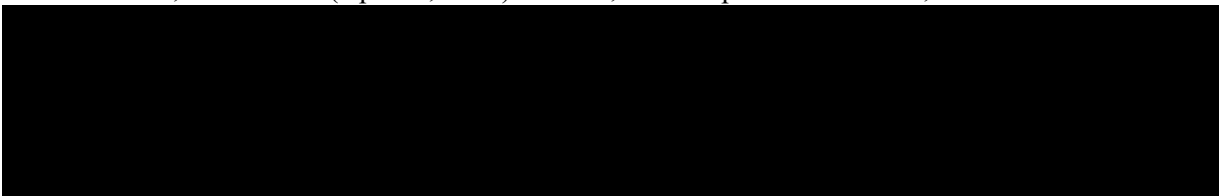
But the context of that document makes clear that the “application systems” at issue were the systems marketed by Alstom and Nalco, which were deployed at the pulverizer as part of the coal feeding process.

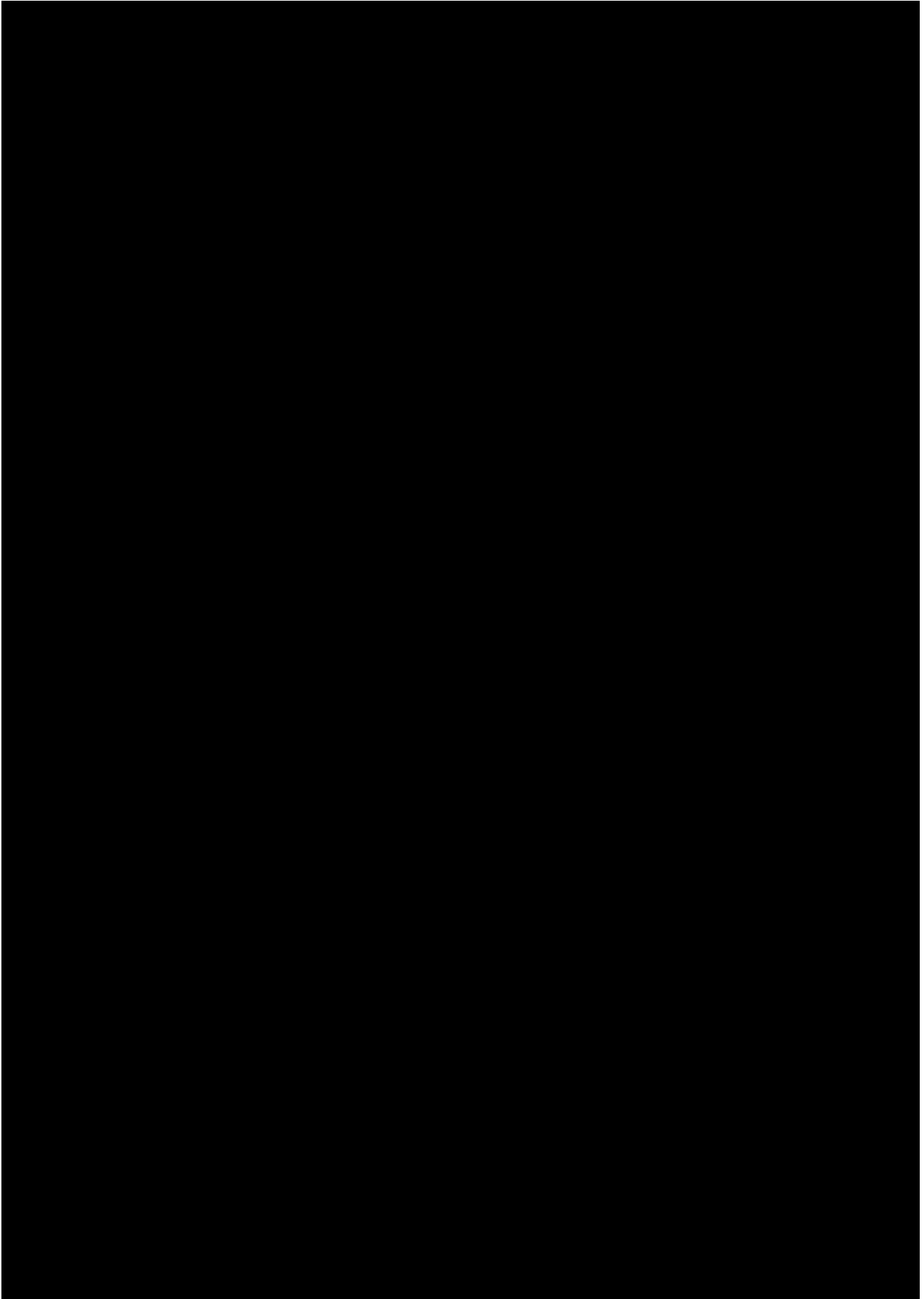


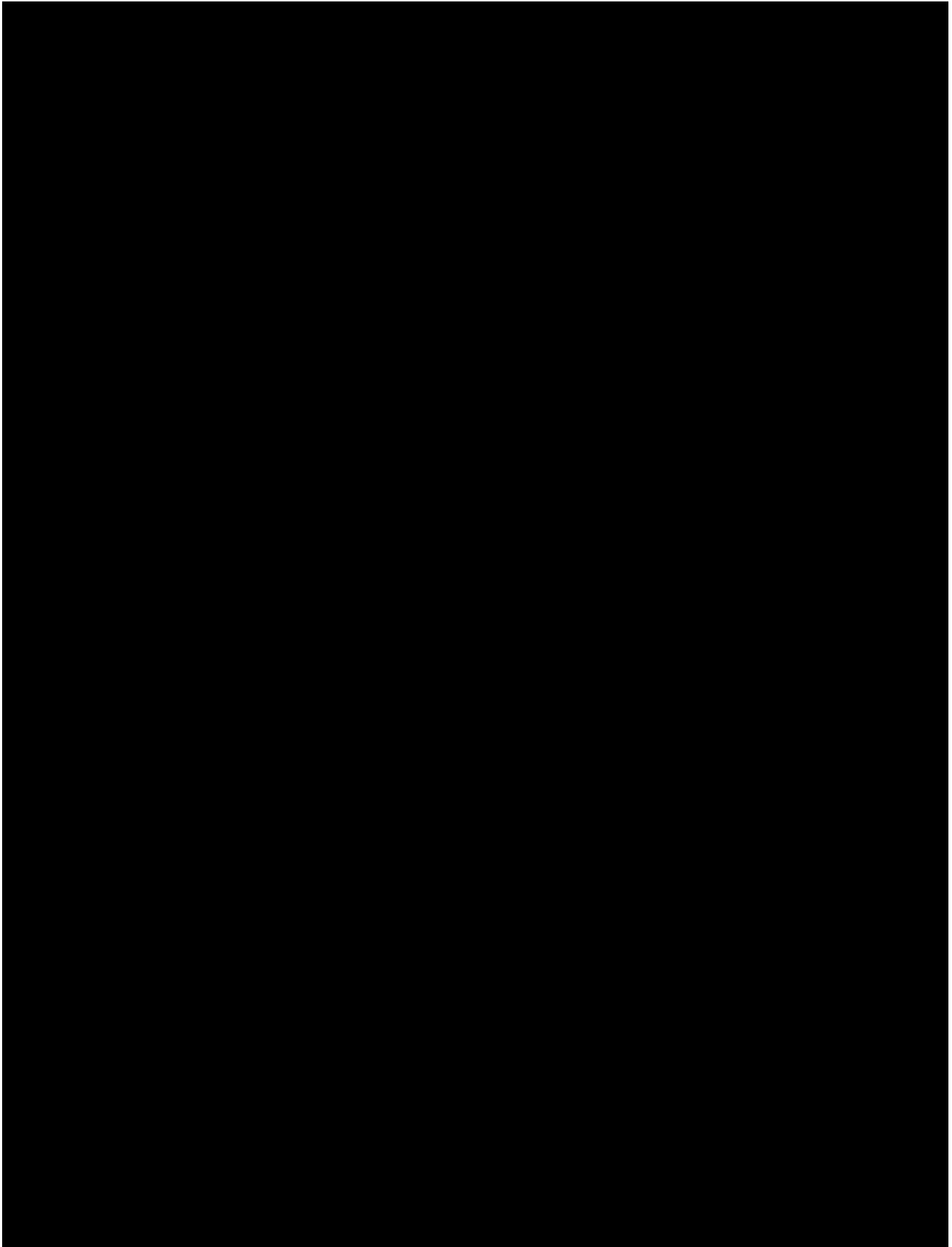
²⁸ Prior to appeal, Nalco filed what purported to be a Rule 59(e) post-judgment motion seeking reconsideration of “that part of [the district court’s] Order that dismissed this case ‘with prejudice’ rather than ‘without prejudice.” D.I. # 136, Pl. Resp. to Def. PFF ¶ 767 (emphases in original brief). The district court denied Nalco’s motion on September 14, 2016, holding that Nalco “fail[ed] to cite to the standard for Rule 59(e)” and made “no argument in the Motion that

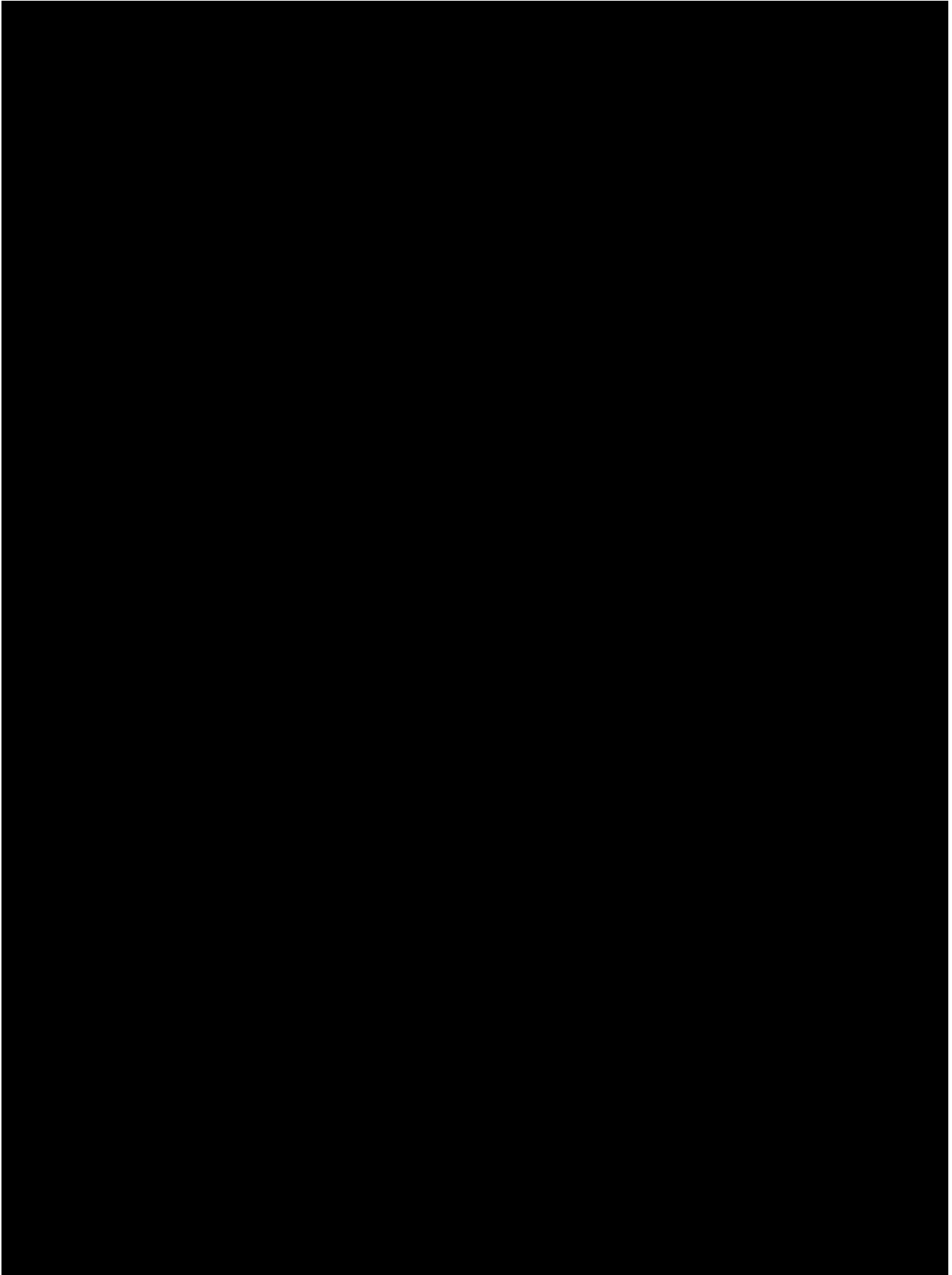


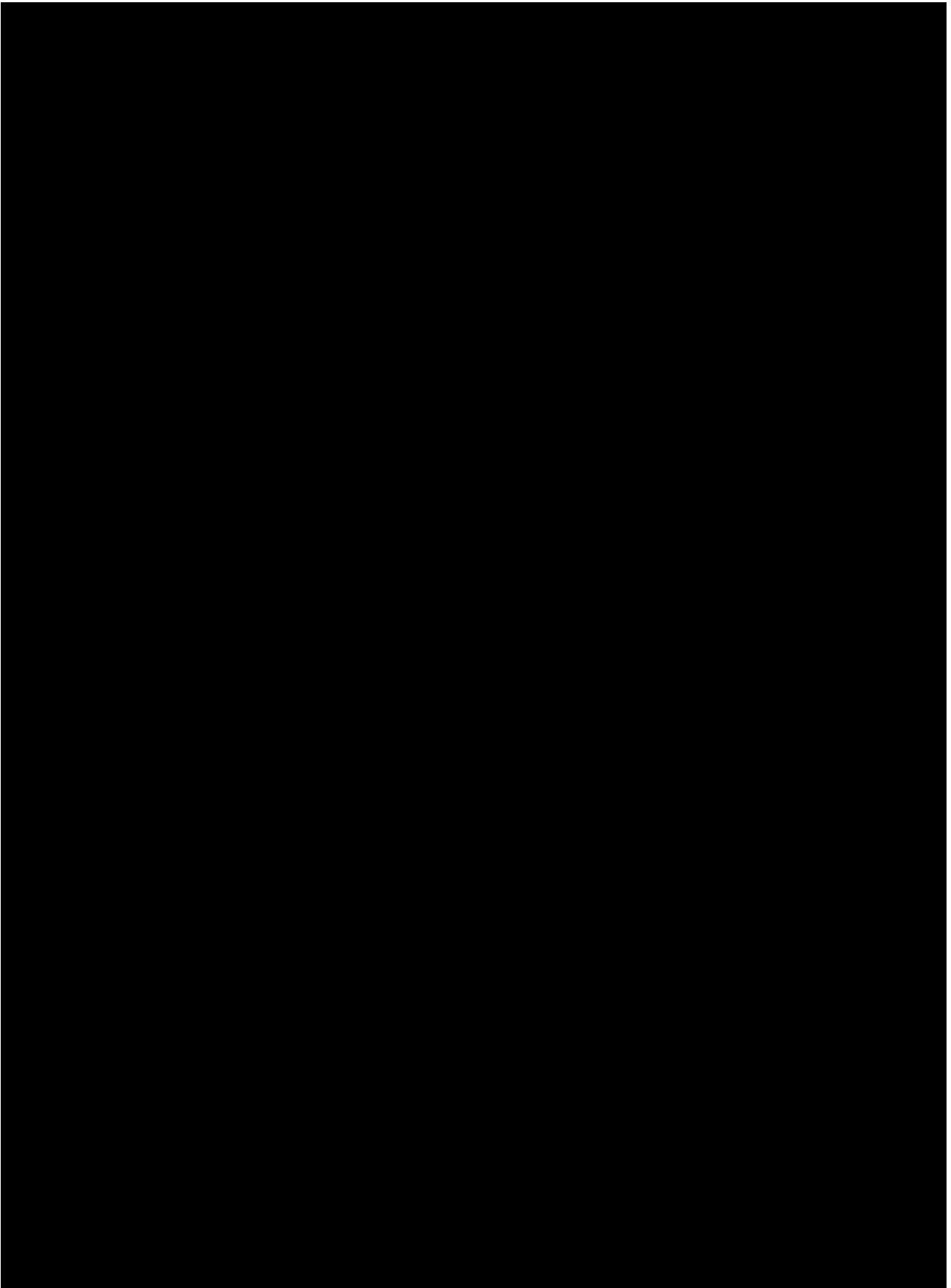
it has met the standard such that a Motion to Reconsider would be appropriate.” *See id.* ¶ 769; D.I. # 90-131, Mark Decl. (Apr. 16, 2019) Ex. 129, Mem. Opinion and Order, at 4.

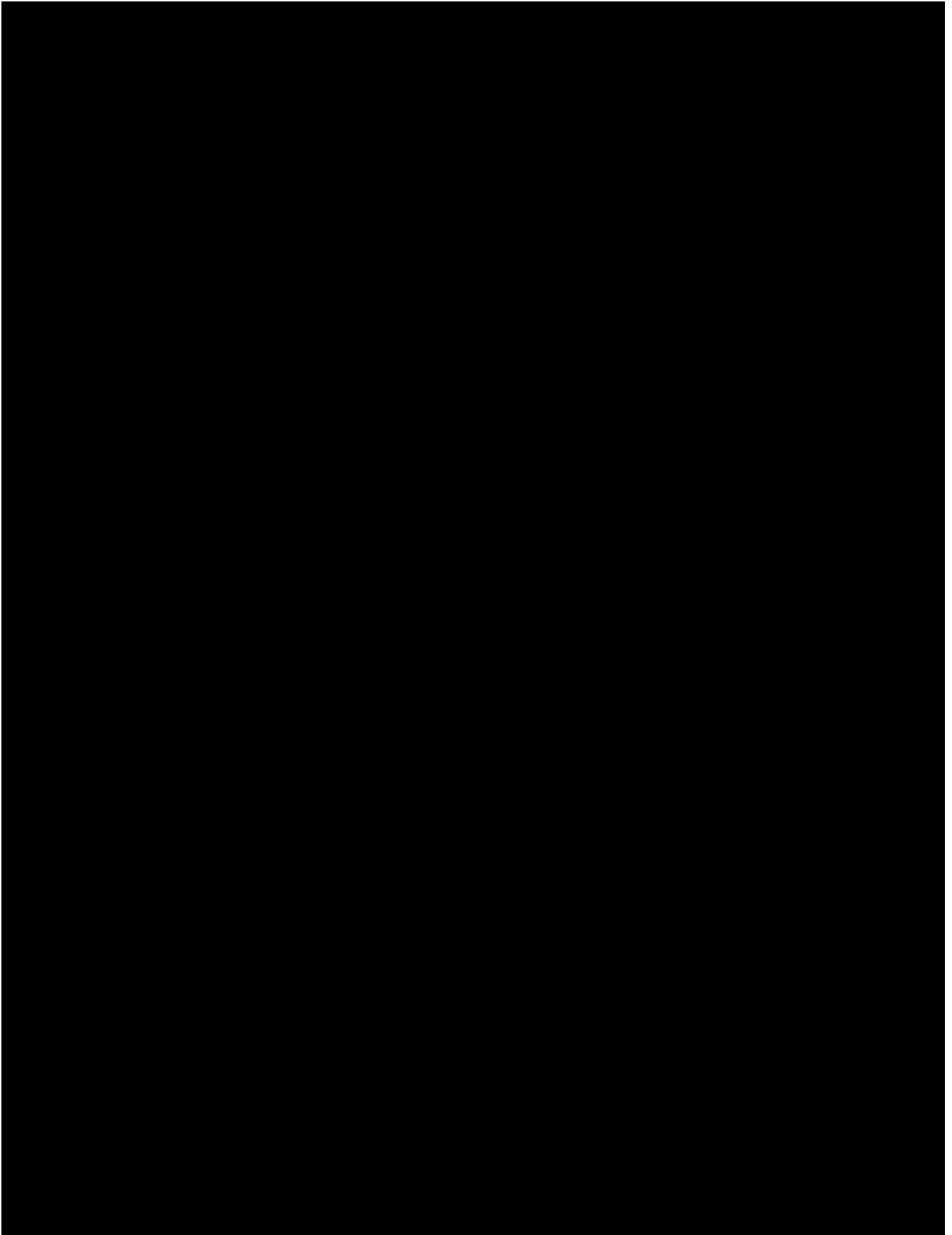


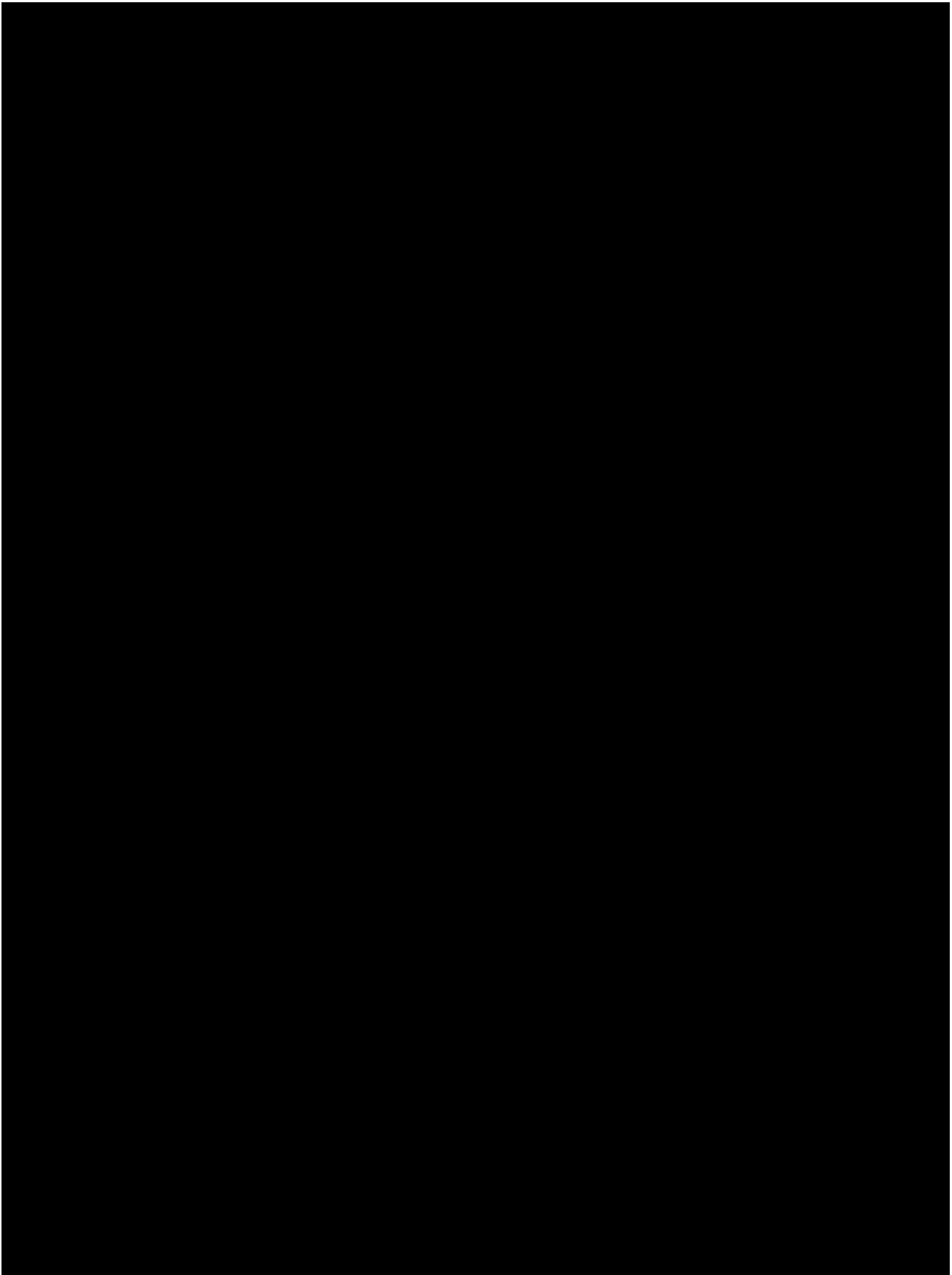


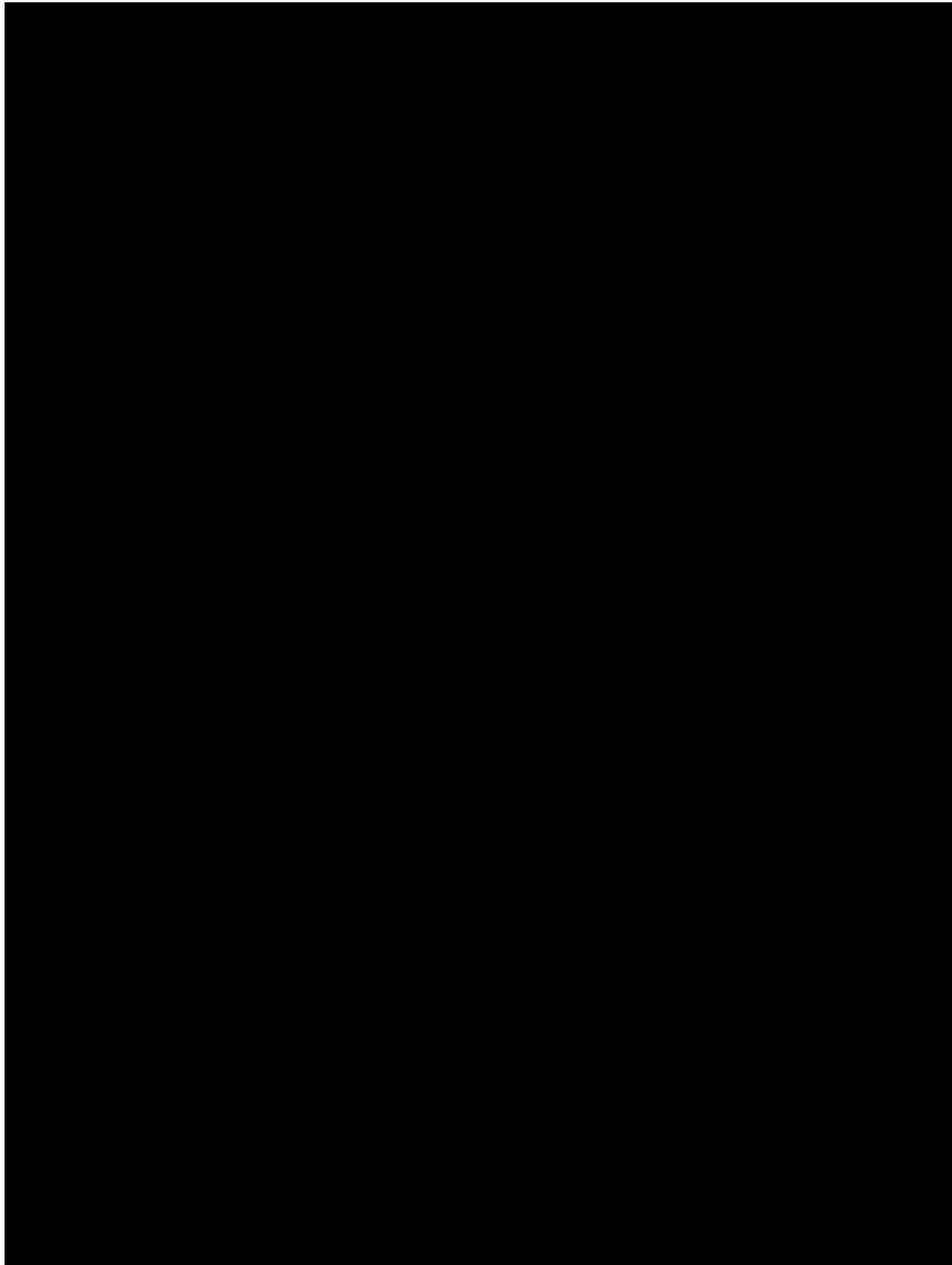












V. The Asserted Claims Are Invalid.

A. Under Plaintiffs’ Proposed Claim Constructions, the Asserted Claims Are Directed to Unpatentable Subject Matter.

Defendants’ opening brief explains why, under Plaintiffs’ proposed claim constructions, the Asserted Claims are invalid for failure to claim patentable subject matter, as required by 35 U.S.C. § 101. *See* D.I. # 107, Def. Op. Br. 85–90. That brief describes the applicable two-part framework for determining patentability. Under the first part of that framework, a court must determine whether the claims are directed to a patent-ineligible concept. *See id.* 86. Plaintiffs argue that the ’692 Patent is not “directed to” a patent-ineligible concept because the claims are purportedly directed to a *specific* and *concrete* process. *See* D.I. # 135, Pl. Opp. Br. at 170 (claims “recite a *specific* process for treating coal combustion flue gas to remove mercury, which involves *concrete* steps to apply an underlying principle and improves upon prior art methods” (emphasis added)), 172–73 (“the claims are directed to treating flue gas by performing *specific* process steps, including injecting a thermolabile molecular bromine precursor into flue gas”), 174 (“the patent claims a *specific* application of the principle that molecular halogens will, under certain circumstances, oxidize elemental mercury”), 175

(“the claimed methods reflect a *specific* application of any underlying chemistry to treat coal combustion flue gas”) (emphasis added).

That is not the case. The ’692 Patent itself lacks any specific guidance, teaching or suggestion for the claimed process that would bring about the “fundamental chemistry of these reactions” that Oehr himself described as his discovery. D.I. # 108, Def. PFF ¶¶188–90; D.I. # 35-3, Oehr Decl. (May 17, 2016) ¶ 7. Indeed, Plaintiffs’ arguments regarding Section 101 are in tension with their arguments opposing summary judgment on non-infringement and anticipation, because Plaintiffs premise those arguments on the claims’ putative *lack* of specificity and boundaries. D.I. # 135, Pl. Opp. Br. 94–101, 179–83. To cite two salient examples, Plaintiffs propose that “injection” covers any means of introducing an additive into a combustion system to treat flue gas (whether by pre-treatment, addition into the combustion zone, or injection into flue gas), and that flue gas is everywhere in the system. D.I. # 135, Pl. Opp. Br. 18–27; D.I. # 82, Amended Joint Table of Terms Requiring Construction, at 2–3.

Under Plaintiffs’ broad reading of the claims, an unspecified amount of a bromide compound is introduced somewhere into a coal combustion system through any mechanism and a reaction follows. D.I. # 102, Pl. Op. Br. 70–73. Nothing else happens or, under the claims, is required to happen.³² The claims merely *recite* a natural law. They do does not *harness* a natural law “to produce a technological improvement that was patent eligible.” *Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC*, 915 F.3d 743, 751 (Fed. Cir. 2019). But that is what Section 101 requires.

³² Indeed, under Plaintiffs’ “five-part summary” of the claims, there is not even a requirement that the adsorbed mercury be collected and removed from the system. D.I. # 135, Pl. Opp. Br. 32, 180.

Plaintiffs summarize the claimed invention as comprised of five essential steps:

In general, the claimed processes of claims 1 and 19 share five common steps: (1) injection of the thermolabile molecular bromine precursor into flue gas; (2) decomposition of that precursor in flue gas; (3) formation from at least some of the decomposed precursor into what ultimately is molecular bromine; (4) reaction (*i.e.*, oxidation) of the elemental mercury in the flue gas with the molecular bromine to form mercuric bromide (HgBr_2); and (5) adsorption of at least a portion of the mercuric bromide by alkaline solid particles that have been provided in the flue gas.

D.I. # 135, Pl. Opp. Br. 180. Only the first of these five steps may be an actual process step to be performed by one using the claimed invention, but that step, the introduction of bromide compounds into a coal combustion system, is not novel. *See* D.I. # 108, Def. PFF ¶ 342 (D.I. # 35-1, '692 Patent, at Abstract; Claims 1 and 19; D.I. # 35-3, Oehr Decl. (May 17, 2016) ¶ 7). And Plaintiffs do not argue that it is.³³ The other four steps happen as a consequence of coal combustion. They are observable results of a natural process, not a technological innovation.

The Complaints in these cases attach an inventor declaration, in which Oehr describes his "invention" as discovering a specific pathway by which bromide compounds might oxidize mercury to mercuric bromide. D.I. # 108, Def. PFF ¶ 320 (D.I. # 35-3, Oehr Decl. (May 17, 2016) ¶ 7). Thus, the '692 Patent's claims, as asserted by the Plaintiffs, are results-based: if the bromine in the systems oxidizes mercury according to the chemical pathway laid out in steps 2 through 4, in any amount, the claims are met.

³³ Even the first step contains a result-oriented element, as whether an injected bromide compound satisfies the requirement of being a thermolabile molecular bromine precursor depends entirely on whether it forms some molecular bromine at Step 3.

Plaintiffs argue that the '692 Patent claims recite specific steps to bring about the reaction pathway, and thus “harness” the reaction to produce a technological improvement. *See* D.I. # 135, Pl. Opp. Br. 173. But the '692 Patent claims lack any specificity that might “harness” the reactions. Indeed, Plaintiffs have repeatedly emphasized that the flue gas into which the chemicals must be injected need not be at any specific temperature, and that the injection need not occur at any specific location. D.I. # 135, Pl. Opp. Br. 30, 37, 39, 48, 56, 82, 224, D.I. # 103, Pl. PFF ¶ 202; D.I. # 72, First Fry Report ¶ 123. Fry states that it is his opinion that claims of “the '692 Patent do not contain temperature or location of treating the flue gas limitations.” D.I. # 72, First Fry Report ¶ 93; *accord* D.I. # 103, Pl. PFF ¶ 202. And Plaintiffs contend that the Patent claims cover all three methods for adding chemicals—pretreating, injecting into the combustion zone, and injecting into the flue gas.

With Plaintiffs insisting that the claims contain no requirements for the temperature, location, or method of injecting, the only remaining question is whether the bromide compound that is injected is a “thermolabile molecular bromine precursor,” which, according to Plaintiffs, depends on the fate of the bromide compound in the system. The '692 Patent, however, does not teach (or even accept as a premise) what constitutes a thermolabile molecular bromine precursor within the meaning of the claims. D.I. # 108, Def. PFF ¶ 345. The patent owner once took the position that the '692 Patent identified two specific thermolabile molecular bromine precursors (CaBr_2 and MgBr_2). D.I. # 108, Def. PFF ¶ 243 (D.I. # 35-9, Respondent Hazelmere’s Brief (Dec. 20, 2012), at 5). Plaintiffs have abandoned that position and now contend that determination of whether a bromide compound is a “thermolabile molecular bromine precursor” as

required by the claim, and whether it proceeds through each of the reaction steps listed in their five-step summary, requires experimental testing or modeling of the coal combustion system. Fry explained Plaintiffs' new position at his deposition:

Q. Okay. Is calcium bromide a thermolabile molecular bromine precursor?

A. Again, I think that's an incomplete question. It depends on many things. It depends on all the things that I indicated in my report -- temperature profile, residence time, the presence of other materials such as unburned carbon, ash constituents, other gas constituents.

Q. You would need to know all of those things in order to determine whether calcium bromide is a thermolabile bromine precursor. Is that your opinion?

A. Or I would have to have some other knowledge about the system and the calcium bromide in that system.

Q. What type of knowledge?

A. It could be modeling of another system. It could be experimental behavior in a similar or the same system.

D.I. # 71, Fry Dep. 11:22–12:15; *see also* D.I. # 108, Def. PFF ¶ 334.

By sweeping in “all the things that I indicated in my report,” Fry incorporated his statement that whether Step 3 (*i.e.*, formation of molecular bromine) occurs in a specific chemical combustion system depends on “the temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc.” D.I. # 108, Def. PFF ¶ 333 (D.I. # 73, Second Fry Report ¶ 250; D.I. # 73, Second Fry Report ¶¶ 205, 233). Fry later testified that a POSA would have to know and consider each of these conditions even to determine whether calcium bromide (which is one component of MerSorb) is a

thermolabile molecular bromine precursor. D.I. # 71, Fry Dep. 62:15–63:9; D.I. # 108, Def. PFF ¶ 333.

With regard to whether calcium bromide is a thermolabile molecular bromine precursor in connection with the accused plants, Fry took a different approach. He testified that he relied “heavily” on an article published by Stephen Niksa in 2010, eight years after the filing of the '692 Patent, to evaluate the multiple factors that he identified:

A. My opinion is that molecular bromide -- bromine is formed from the MerSorb that's added to the refined coal --

Q. Okay.

A. -- in the accused plants.

Q. My question is, in reaching that opinion did you take accounts of the factors that are listed in this sentence in paragraph 200, and if so, how?

MR. FARNEY: Objection. Compound.

THE WITNESS: Yes, I did. I – I relied heavily on Niksa article for this evaluation. For Niksa has modeled three full-scale power plants that are, in my opinion, representative of the conditions that comprise these identified factors that are similar enough to each other and to the Columbia Unit 1 and Weston Unit 3 that I expect the same chemical behavior.

D.I. # 108, Def. PFF ¶ 337; D.I. # 71, Fry Dep. 142:9–143:4.

Fry further testified that he also relied for this opinion on Chem-Mod Marketing presentations from 2014. D.I. # 108, Def. PFF ¶ 337; D.I. # 72, First Fry Report ¶ 135. Fry offered similar opinions regarding Steps 4 (reaction of elemental mercury with molecular bromine to form mercuric bromide) and 5 (adsorption of mercuric bromide on alkaline solid particles). That is, whether any of those steps occurs in a coal combustion system depends on variables and conditions specific to the system. *See* D.I. # 108, Def. PFF ¶ 333; D.I. # 73, Second Fry Report ¶ 250 (occurrence of Step 4 depends on “the

temperature profile of the system, residence time, ash composition and unburned carbon in ash, coal type, other flue gas constituents, pressure, presence of acid gases, water vapor, composition of the system walls, size and orientation of various aspects of the combustion facility, etc.”); D.I. # 135, Pl. Opp. Br. 190–91 (occurrence of step 5, adsorption of mercuric bromine, depends on system conditions).

None of these purportedly determinative factors, nor their significance to the claimed invention, is mentioned anywhere in the ’692 Patent. There is nothing in the Specification or the claims of the ’692 Patent to make a POSA aware of the relevance of these conditions to whether a particular bromide compound will proceed through the required reaction steps in a given combustion system, or to guide a POSA through an analysis (or even guide a POSA *how* to conduct such an analysis) of these conditions in order to determine whether a particular bromide compound will proceed through the claimed reaction steps in any given combustion system. D.I. # 108, Def. PFF ¶¶ 345, 352. As a consequence, the Plaintiffs’ statements that the ’692 Patent claims a “specific application” that the claimed reactions will occur “under the conditions present in coal combustion flue gas” are completely unsupported. D.I. # 135, Pl. Opp. Br. 175.

That the ’692 Patent does not “harness” the reaction in service to a technological improvement is evident from Fry’s having to rely on a detailed chemical physics model published *eight years after the patent was filed* [REDACTED] [REDACTED] as the basis for his opinion on what constitutes a bromide compound that is a “thermolabile molecular bromine precursor.” D.I. # 108, Def. PFF ¶ 337. Indeed, Fry conceded that if he had to determine whether Step 3 was met in a

specific application, and if the Niksa paper was unavailable, he would need to directly measure or model the system. *Id.*, see also D.I. # 71, Fry Dep. 145:1–7.

Plaintiffs assert that their claims are patentable for the same reasons that the claims were allowed in *Vanda Pharm. Inc. v. West-Ward Pharm. Int’l Ltd.*, 887 F.3d 1117 (Fed. Cir. 2018), but the patent in that case set out specific and certain process steps to perform the law of nature. The *Vanda* court explained that the claims at issue included treatment steps that are “directed to a specific method of treatment for specific patients using a specific compound at specific doses to achieve a specific outcome.” 887 F.3d at 1136. In contrast, the ’692 Patent provides no such innovative steps, nor any means for detecting whether the claimed reaction pathway even occurred. D.I. # 107, Def. Op. Br. 88. Plaintiffs’ recitation of the word “specific” does not make it so.

The undisputed evidence shows that the claims of the ’692 Patent are like those that were invalidated in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012). Those claims included a step involving a method of application, but the instruction was insufficient, as it amounted to little more than telling the POSA to take the law of nature and “apply it.” *Mayo*, 566 U.S. at 72. The claims of the ’692 Patent, as construed by the Plaintiffs, are similar. They simply instruct to inject a thermolabile molecular bromine precursor, without any specifics as to how, where, or what compound to inject such that the compound *is* a thermolabile molecular bromine precursor that will proceed through the reaction steps required by the patent claims. D.I. # 107, Def. Op. Br. 88; D.I. # 108, Def. PFF ¶ 345.

Plaintiffs fare no better under the second part of the test for patent eligibility, which requires the court to determine whether claims that are directed to patent-ineligible

concepts contain an “inventive concept,” or “an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *See* D.I. # 107, Def. Op. Br. 86. They argue that inventive steps transform the claims, but point to the same two steps as purportedly “inventive”: injecting a thermolabile molecular bromine precursor, and providing alkaline solid particles to adsorb the mercuric bromide produced when molecular bromine reacts with elemental mercury. *See* D.I. # 135, Pl. Opp. Br. 176–78. There is no dispute, however, that alkaline solid particles are provided in the fly ash of typical coal combustion systems as the natural result of combustion. *See* D.I. # 136, Pl. Resp. to Def. PFF ¶ 281. The other step, the injection of a thermolabile molecule bromine precursor, merely restates the first of the reaction pathways, and the inventor has never claimed to be the first to introduce bromide compounds into a coal combustion system. *See* D.I. # 108, Def. PFF ¶ 320, 322–23. The patent claim is directed to the specific reaction pathway, and merely parroting the claim language “injecting . . . a thermolabile molecular bromine precursor” does not render that step “innovative.” As Fry’s opinions show, the ’692 Patent provides no guideposts for a POSA to determine whether a particular bromide compound acts as a TMBP in a particular application, and provides no process steps to ensure that a particular compound does act that way. D.I. # 108, Def. PFF ¶ 345, 352 (D.I. # 73, Second Fry Report ¶¶ 194, 200; D.I. # 71, Fry Dep. 11:22–14:4). The step is not innovative.

FUnder the second part of the test for patentability, “well-understood, routine, conventional activit[ies]” are insufficient to save a patent. *See* D.I. # 107, Def. Op. Br. 86. Plaintiffs argue that there is a disputed issue of fact as to whether the invention

describes “well-understood, routine and conventional activities.” D.I. # 135, Pl. Opp. Br. 178–79. But Plaintiffs have already taken the position that the one active step in the independent claims—injecting the bromide compound into the flue gas—does not require that the injection be at any particular temperature, mechanism or location. D.I. # 102, Pl. Op. Br. 41–42; D.I. # 72, First Fry Report ¶ 123. In other words, Plaintiffs’ position is that any routine and conventional method of introducing the chemical meets the injecting step, and Plaintiffs do not identify any further steps, such as those in the dependent claims, that are not well-understood, routine and/or conventional.

B. If the Asserted Claims Are Construed to Cover Burning Refined Coal, the Claims Ensnare at Least *Julien* and Are Therefore Invalid Under Sections 102 and 103 of Title 35.

Defendants’ opening brief explained that the *Julien* experiment involved injecting CaBr₂ into a coal combustion system that contained flue gas, and how that reference constitutes prior art that anticipates the Asserted Claims of the ’692 Patent. *See* D.I. # 107, Def. Op. Br. 90–109. Plaintiffs do not dispute that *Julien* was published prior to the ’692 Patent (D.I. # 136, Pl. Resp. to Def. PFF ¶ 418), or that it discloses the following:

- it “teaches the injection of CaBr₂ into the combustion zone of a coal combustor” and analyzes the effect on coal combustion flue gas of introducing that chemical into a coal combustor (*id.* ¶¶ 420, 421);
- under Plaintiffs’ construction of “injection/injecting” and “flue gas,” it discloses injecting calcium bromide into flue gas (*id.* ¶ 425);
- it discloses that alkaline solid particles are present in advance of a particulate collection device (*id.* ¶ 427);
- it discloses the use of a baghouse, which is a particulate collection device (*id.* ¶ 440); and
- the coal combusted to form coal fly ash particles is subbituminous coal (*id.* ¶ 430).

Plaintiffs also concede that all coal combustion flue gas contains mercury. *Id.* ¶ 280. In view of the foregoing, *Julien* satisfies all the requirements for an anticipatory prior art reference under Plaintiffs' proposed construction of the Asserted Claims.³⁴

Plaintiffs attempt to create a factual dispute over whether *Julien* is an anticipatory reference (and thus avoid summary judgment), not by distinguishing the inputs or operating parameters of the *Julien* system, but by resting on an expert opinion that the bromine and mercury in the *Julien* system come to a ***different chemical fate*** because *Julien* employed an experimental combustion apparatus and not a large coal-fired furnace like those at the Columbia Energy Center and the Weston Power Plant. D.I. # 135, Pl. Opp. Br. 180.

Plaintiffs' argument has no basis. Nothing in the Specification or claims of the '692 Patent teaches that the claimed method is specific to large commercial-type operations, or that the desired reactions are limited to certain types or sizes of combustors. D.I. # 108, Def. PFF ¶ 3 (D.I. # 35-1, '692 Patent). To the contrary, the focus of the '692 Patent disclosure is on the flue gas, and the teachings are all directed to the desired reactions occurring in flue gas. Plaintiffs' new position contradicts the teaching and representations of the patent owner, as well as Fry's positions earlier in the case. In short, Plaintiffs' current arguments appear contrived solely to circumvent the *Julien* experiment and disclosure.

³⁴ Plaintiffs disputed certain proposed findings of fact relating to *Julien* on the basis that Defendants' Proposed Findings of Fact did not correctly state the temperature range. *See* D.I. # 136, Pl. Resp. to Def. PFF ¶¶ 424, 436, 437, 438. The temperature differences cited by Plaintiffs are not material to the reactive pathway that purports to be the basis of the '692 Patent claims, and there is no dispute regarding a large portion of the cited temperature range.

Plaintiffs' change in position is stark. During the re-examination, the patent owner told the PTAB that "calcium bromide will decompose to form HBr which in turn will form Br₂ which in turn will oxidize elemental mercury to HgBr₂." D.I. # 108, Def. PFF ¶ 247 (D.I. # 35-9, Respondent Hazelmer's Brief (Dec. 20, 2012), at 5).

Contradicting that earlier position, Plaintiffs now assert that calcium bromide is a thermolabile molecular bromine precursor when used in a coal-fired power plant, but whether it might be such in any other coal combustion system purportedly requires experimentation and analysis of many variables. If calcium bromide is, categorically, a thermolabile molecular bromine precursor (as the patent owner told the PTAB), then *Julien*, which used that chemical in a coal combustor (with a particulate collection device at the output) would anticipate the '692 Patent—so the line Plaintiffs attempt to draw conveniently covers the Defendant power plants but excludes the *Julien* reference because *Julien* used an experimental combustor.

The record shows that the equipment choice has nothing to do with the scope of the method claims and Plaintiffs' newly-contrived position is without merit.

1. The '692 Patent Does Not Contain Any Language Limiting the Claims to Coal-Fired Power Plants.

Plaintiffs argue that a POSA would infer that the patent owner's statements regarding thermolabile molecular bromine precursors were limited to coal-fired power plants, to the exclusion of other combustion systems. D.I. # 135, Pl. Opp. Br. 203–05. To support this argument, Plaintiffs point to portions of the Specification describing the claimed invention as useful in coal-fired power plants, or referring to equipment associated with coal-fired power plants. *Id.*; D.I. # 134, Def. Resp. to Pl. PFF ¶¶ 1158–64. These statements, however, were made in the context of describing a preferred

embodiment, and do not limit the scope of the patent's claims.³⁵ For example, the patent owner made the following statement to the PTAB to summarize its position:

Considering the Oehr Patent in its entirety and relying on the art of record to demonstrate what a person of ordinary skill in the art (a "POSITA") would know, Oehr teaches that thermolabile molecular halogen precursors ("TMHP"), including magnesium bromide and calcium bromide, thermolabile molecular bromine precursors ("TMBP"), can be added, for example, after the superheater section of a coal combustor, where a POSITA would know the temperature range from about 649 °C to about 1232 °C and that at such temperatures both magnesium bromide and calcium bromide will decompose to form HBr which in turn will form Br₂ which in turn will oxidize elemental mercury to HgBr₂.

D.I. # 108, Def. PFF ¶ 247; D.I. # 35-9, Respondent Hazeltine's Brief (Dec. 20, 2012), at 5. In this description, Oehr teaches that calcium bromide is a thermolabile molecular bromine precursor, and that it "**will form HBr** which in turn **will form Br₂** which in turn will oxidize elemental mercury to HgBr₂," and that these reactions will occur **at such temperatures** as those found "for example" after the superheater section of a coal combustor. *Id.* (emphasis added). The patent owner thus argued that the reaction pathway **will** proceed because the components of the reaction will meet in a certain **temperature range**, not that the reaction pathway also requires (or can only proceed in) a coal-fired power plant.

The '692 Patent's teaching that the mercury in flue gas will be converted to mercuric bromide in the presence of Br₂ (molecular bromine), D.I. # 103, Pl. PFF ¶ 124,

³⁵ Plaintiffs gesture towards the preferred embodiment in trying to limit the '692 Patent to coal-fired power plants, but reject it as guidance when Defendants point out that the preferred embodiment injects calcium bromide into flue gas well after the combustion zone. D.I. # 135, Pl. Opp. Br. 225. Of course if Plaintiffs applied their own position consistently, then the preferred embodiment provides further confirmation that "injection into flue gas" does **not** encompass pre-treatment of coal or introducing additives in the combustion zone.

leads to the same conclusion. The '692 Patent's only support for that statement is its citation of the free energy of formation of mercury bromide at "temperatures typical of coal combustor flue gas." D.I. # 108, Def. PFF ¶ 194 (D.I. # 35-1, '692 Patent, at 4:66–5:28). The '692 Patent obtained that value from the JANAF Thermochemical Tables, which, is a general reference work in chemistry, not information particular to coal-fired power plants.³⁶ *Id.*

Consistent with this material, Plaintiffs told the PTAB, the Court, and Defendants that CaBr_2 *is* a thermolabile molecular bromine precursor, without any qualifiers such as the type of coal combustion system, the residence time or the materials of the combustor walls. D.I. # 35-1, '692 Patent, at 4:28–30; D.I. # 35-9, Respondent Hazelmere's Brief (Dec. 20, 2012), at 5, 9, 9–10, 11, 13; D.I. # 35, SAC ¶ 94; D.I. # 72, First Fry Report ¶ 159; D.I. # 72–36, First Fry Report Ex. AA, Plaintiffs' Infringement Contentions, at Claims 1 and 19; [REDACTED]

[REDACTED] They needed to take the position that a compound's status as a thermolabile molecular bromine precursor was readily apparent and predictable and absolute because the Patent faced a challenge specifically directed to its flimsy teachings regarding those substances.

³⁶ In the same vein, the patent owner cited directly to the *Paulik* reference to support its argument to the PTAB that calcium bromide is a thermolabile molecular bromine precursor. D.I. # 108, Def. PFF ¶ 248. Paulik concluded that CaBr_2 decomposes in an oxygen-containing atmosphere to form CaO (calcium oxide) and Br_2 (molecular bromine). *Id.* at ¶ 249. The *Paulik* reference is not limited to combustion in coal-fired power plants. It is a laboratory study that makes no mention of coal or combustion or power plants. *Id.*; see D.I. # 90-158, Mark Decl. (Apr. 16, 2019) Ex. 156, F. Paulik et. al., *Examination of the Decomposition of CaBr_2 With the Method of Simultaneous TG,*

DTG, DTA and EGA, 15 JOURNAL OF THERMAL ANALYSIS 271 (1978).

Having achieved that goal, Plaintiffs now abandon this position to argue that additional factors must be analyzed to determine how to categorize a chemical as a thermolabile molecular bromine precursor or not. Starting for the first time with Fry's Second Report, Plaintiffs asserted that CaBr_2 and MgBr_2 are not predictably thermolabile molecular bromine precursors that oxidize mercury. *See, e.g.*, D.I. # 73, Second Fry Report ¶¶ 193–95, 203; D.I. # 108, Def. PFF ¶¶ 330–34; *supra* Arg. § V.C. Plaintiffs (through Fry) thus rejected their earlier view that whether a chemical is a thermolabile molecular bromine precursor or not is a property of the chemical, in favor of a complex scheme that requires the analysis of more than ten conditions before a bromide compound can be classified as a “thermolabile molecular bromine precursor.” *See e.g.*, D.I. # 108, Def. PFF ¶¶ 327–37; D.I. # 73, Second Fry Report ¶¶ 193–94, 205; D.I. # 71, Fry Dep. 11:22–12:18, 142:9–148:13.

There is a strategic reason for Plaintiffs' shift. There is no dispute that the *Julien* system involves the injection of CaBr_2 into a coal combustor in the very temperature range at which the patent owner repeatedly told the PTAB that CaBr_2 is a thermolabile molecular bromine precursor. *See* D.I. # 136, Pl. Resp. to Def. PFF ¶¶ 422, 436; D.I. # 90-173, Mark Decl. Ex. 186, S. Julien et al., *The effect of halides on emissions from circulating fluidized bed combustion of fossil fuels*, 75 FUEL 1655 (1996); D.I. # 35-10, Decision on Appeal (Dec. 12, 2013), at 5. In order to avoid *Julien*, Plaintiffs needed to jettison their prior position and analysis and ignore what happens in that system as a consequence of the laws of chemistry. The switch in position is not sustainable, however, and Plaintiffs cannot have it both ways. If the patent owner's representations to the PTAB about the teachings of the '692 Patent are credited, along with the prior art

references that were relied upon, such as *Paulik*, then *Julien* anticipates. If, however, Plaintiffs are permitted to abandon that position, and rely upon the theories announced in Fry's Second Report, then the analysis in the '692 Patent, the patent owner's appeal brief, and Fry's First Report are wholly inadequate to establish that *any* bromide compound is a "thermolabile molecular bromine precursor," as none analyzes Fry's ten-plus factors necessary to categorize the chemical. And the patent fails under Section 112.

2. Plaintiffs Should Be Judicially Estopped Based on Their Earlier Successful Advocacy Before the PTAB.

As explained in Defendants' opening brief, Plaintiffs successfully argued to the PTAB that a POSA would identify CaBr_2 as a thermolabile molecular bromine precursor that would oxidize mercury in coal combustion flue gas to mercuric bromide at temperatures that include the temperatures in the *Julien* reference. *See* D.I. # 107, Def. Op. Br. 92–101. In their opposition brief, Plaintiffs attempt to argue that this earlier position is not inconsistent with their new one, reframing their earlier statements as: "the '692 Patent teaches that under the conditions present in a typical coal-fired power plant, calcium bromide behaves as a thermolabile molecular bromine precursor when injected into flue gas." D.I. # 135, Pl. Opp. Br. 202 (emphasis in original). As explained above, the phrase Plaintiffs chose to emphasize in this statement is absent from the arguments that they made to survive the reexamination. *See, e.g.*, D.I. # 35-10, Decision on Appeal (Dec. 12, 2013), at 5. Plaintiffs have simply inserted this extra condition in order to bridge their two otherwise inconsistent positions.

Plaintiffs claim that they do not obtain any unfair advantage from this stark turnabout. D.I. # 135, Pl. Opp. Br. 201–02. Defendants have already explained, however, that it "is unfair for Hazelmere to protect its patent claims based on the position

that a POSA would know the behavior of CaBr₂, but then, when faced with a prior art reference disclosing the addition of CaBr₂, claim that the behavior of CaBr₂ depends on a large number of previously-unidentified factors.” D.I. # 107, Def. Op. Br. 100. The unfairness is manifest from the purpose: replacing the earlier, successful advocacy of predictability, in order to avoid a Section 112 challenge, in favor of an attempt to avoid on-point anticipatory prior art by advocating complex situational dependencies.

3. The *Julien* Reference Does Not “Squarely Refute” Wilcox’s Opinion.

Plaintiffs argue that the *Julien* reference itself refutes the notion that the CaBr_2 in *Julien* results in the formation of molecular bromine, Br_2 . D.I. # 135, Pl. Opp. Br. 185. The statements to which Plaintiffs refer are the statements in the *Julien* reference that modeling based on thermodynamics predicts the complete decomposition of CaBr_2 to HBr . *Id.*, D.I. # 133, Pl. Supp. PFF ¶¶ 1105–06. As Plaintiffs well know, this argument is a red herring, as it is well established in this case that at flue gas temperatures, the path from CaBr_2 to Br_2 involves the conversion of CaBr_2 to HBr , and then from HBr to Br_2 .

Likewise, the patent owner explained that “calcium bromide will decompose to form HBr which in turn will form Br₂ which in turn will oxidize elemental mercury to HgBr₂.” D.I. # 133, Pl. Supp. PFF ¶ 1166; D.I. # 35-10, Decision on Appeal (Dec. 12, 2013); see also D.I. # 75, First Wilcox

Report ¶ 110. Wilcox's opinion has consistently been that the CaBr_2 added to the *Julien* combustor would necessarily result in the formation of some Br_2 , which would effect the oxidation of mercury to mercuric bromide, where it would be adsorbed onto the alkaline solid particles in the fly ash. D.I. # 108, Def. PFF ¶ 439; D.I. # 75, First Wilcox Report ¶¶ 139–47; D.I. # 77, Third Wilcox Report ¶¶ 21–29. In other words, her opinion has been that CaBr_2 in a coal combustion flue gas at 850 °C, and cooling, behaves exactly as the patent owner told the PTAB that it predictably would.

4. Dr. Niksa's Redundant and Late Expert Opinion Does Not Create a Triable Issue of Fact.

Despite Fry's opinions that he relied heavily on the *Niksa* reference, and despite Fry offering his opinion that the *Niksa* reference does not support Wilcox's conclusion that the *Julien* system forms some Br_2 and oxidizes some elemental mercury, Plaintiffs seek to file an expert report by the author of the *Niksa* reference well after the expert disclosure deadline. See D.I. # 70, Motion for Leave to Designate Dr. Stephen Niksa as a Rebuttal Expert and to Serve His Rebuttal Expert Report ("Niksa Motion"). Defendants' opposition to that motion details the reasons why Plaintiffs' gamesmanship should not be allowed. See D.I. # 87, Def. Opp. to Niksa Motion; D.I. # 119, Motion to Strike Brief in Reply.

Regardless, Niksa's late opinions do not create a triable issue of fact for several reasons.

First, Wilcox's opinions are not based on the *Niksa* reference alone, but also on her own expertise and knowledge of the chemistry, on the representations made by the patent owner in the Specification and the reexamination, and on the *Paulik* reference. D.I. # 108, Def. PFF ¶ 79; D.I. # 75-2, First Wilcox Report, List of Materials Considered.

Second, Fry contradicts *Niksa*. For example, Fry opined that “we cannot conclude that Niksa’s model correctly predicts bromine speciation.” D.I. # 108, Def. PFF ¶ 360 (D.I. # 73, Second Fry Report ¶ 274). Fry also states that, based on his reading of *Niksa* regarding the behavior of CaBr_2 in flue gas, “ Br_2 begins to form at temperatures of about 800 to 850 °C” and reaches its maximum concentration at lower temperatures. D.I. # 108, Def. PFF ¶ 361 (D.I. # 74, Third Fry Report ¶ 84). *Julien* discloses the injection of CaBr_2 into a combustion system between 800 and 850°C, where, according to Fry’s statement, Br_2 begins to form. D.I. # 108, Def. PFF ¶¶ 361, 422–24. The flue gases then cool through a series of flue gas coolers until it reaches the bag filter. D.I. # 108, Def. PFF ¶ 424. Fry has testified that these flue gas coolers aggressively quench the temperature of the flue gas so that it will be cooled to temperatures around 177 °C [350 °F]. D.I. # 108, Def. PFF ¶ 424; D.I. # 71, Fry Dep. 256:25–257:25; 259:6–261:5.

Thus, the evidence actually paints a consistent picture of molecular bromine (Br_2) forming in combustion systems in particular temperature ranges, and specifically in the temperature range reported in *Julien*. Plaintiffs attempt to create an issue of fact by advancing a new position about the inability to predict the performance of calcium bromide depending on the combustion system. *See* D.I. # 135, Pl. Opp. Br. 197–200. That fails, however, because Plaintiffs cannot dispute fundamental chemistry and that using the known parameters of the *Julien* system, calcium bromide is a thermolabile molecular bromine precursor.

C. The Asserted Claims Are Invalid for Failure to Satisfy the Requirements of 35 U.S.C. § 112.

Defendants’ opening brief explains why summary judgment should be granted that the Asserted Claims of the ’692 Patent are invalid for failure to comply with the requirements of 35 U.S.C. § 112. D.I. # 107, Def. Op. Br. 109–19.

1. The Asserted Claims Are Invalid Because They Lack Written Description and Are Not Enabled With Regard to the Thermolabile Molecular Bromine Precursor.

With respect to the claim requirement of a “thermolabile molecular bromine precursor,” Plaintiffs’ efforts to survive the invalidity challenges under Section 112 are hobbled by their attempts to save the claims from invalidation by *Julien*, alone or in combination with other references.

Plaintiffs’ primary strategy for avoiding the experimental results from the *Julien* combustor is to argue that experimental coal combustion systems have “no relevance to the ’692 Patent.” D.I. # 135, Pl. Opp. Br. 219. Yet Plaintiffs do not argue that the claims of the ’692 Patent are limited to “coal-fired power plants,” nor have they ever proposed such a claim construction. D.I. # 135, Pl. Opp. Br. § II; D.I. # 82, Amended Joint Table of Terms Requiring Construction. They could not do so, because the claims are not directed to any particular coal-combustion system. Rather, the claims are directed to “treating coal combustion flue gas,” and even Plaintiffs’ proposed construction mentions only *what* is being combusted, not where or how. D.I. # 135, Pl. Opp. Br. § II; D.I. # 82, Amended Joint Table of Terms Requiring Construction.

The limitations in the independent claims do not narrow them to power plants, either; the only apparatus identified in those independent claims is the particulate collection device, which is also present in experimental systems such as in *Julien*. D.I. #

35-1, '692 Patent, Claims 1 and 19; D.I. # 108, Def. PFF ¶ 440. Plaintiffs thus insinuate that the '692 Patent's claims should be construed to limit the scope of the claims to "coal-fired power plants," but they do not state so explicitly, and lack any foundation whatsoever for that argument. D.I. # 135, Pl. Opp. Br. 203–09, 217–20.

That the '692 Patent is not limited to coal-fired power plants is evident not only from the claim language, but also from the data cited in the Patent and during the reexamination. During the latter, the patent owner relied on the *Paulik* reference to suggest that a POSA would recognize CaBr_2 as a thermolabile molecular bromine precursor at temperatures relevant to coal combustion flue gas. D.I. # 108, Def. PFF ¶ 248. *Paulik*, however, is a laboratory study that does not mention coal or coal plants. *See, e.g.*, D.I. # 90-158, Mark Decl. (Apr. 16, 2019) Ex. 156, F. Paulik et. al., *Examination of the Decomposition of CaBr_2 With the Method of Simultaneous TG, DTG, DTA and EGA*, 15 JOURNAL OF THERMAL ANALYSIS 271 (1978).

Likewise, the Specification of the '692 Patent cites the free energy of formation of mercuric bromide, HgBr_2 , as its basis for teaching that molecular bromine, Br_2 , in coal combustion flue gas will oxidize elemental mercury, Hg^0 , to HgBr_2 . D.I. # 35-1, '692 Patent at, 4:66–5:19. The free energy of formation is a chemical attribute that depends on temperature. D.I. # 108, Def. PFF ¶¶ 194, 196. Values for the free energy of formation are taken from a general reference book cited in the patent (and as Oehr explained during his deposition), not anything particular to coal-fired power plants. D.I. # 108, Def. PFF ¶¶ 196-200. And of course, Oehr does not state that the identity of CaBr_2 as a thermolabile molecular bromine precursor, or the oxidation of mercury to mercuric bromide, is limited to coal-fired power plants. Rather, this is a new limitation that

Plaintiffs purport to read into the claims to avoid invalidity in light of references such as *Julien*. Moreover, many of the references cited in the '692 Patent are not limited to commercial coal-fired power plant references, but also discuss laboratory and pilot-scale coal combustors. D.I. # 35-1, '692 Patent at, References 7, 8, 10, 16.

Plaintiffs' other strategy for avoiding anticipation—which focuses on the “thermolabile molecular bromine precursors”—also undercuts their Section 112 arguments. Plaintiffs' expert witness, Fry, testified that whether a bromide compound is a “thermolabile molecular bromine precursor” is not predictable, and that determining whether a compound is a “thermolabile molecular bromine precursor” would require significant experimentation. D.I. # 108, Def. PFF ¶¶ 332, [REDACTED]. Indeed, Fry identified a non-exhaustive list of ten factors that a POSA would need to consider to determine whether a particular bromide compound would be a thermolabile molecular bromine precursor in a particular system. *See id.*

Plaintiffs' opposition brief obscures the question of how these factors were considered in the Specification of the '692 Patent, arguing only that they “are predictable in coal-fired power plants,” D.I. # 135, Pl. Opp. Br. 218–19, but that suggestion is flatly inconsistent with Fry's testimony, even with respect to the very narrow question of whether CaBr_2 would be a thermolabile molecular bromine precursor in the coal-fired power plants accused in these cases. Not only did Fry testify that either detailed measurements, or multi-factor experimentation, or complex modeling, would be needed to determine whether this or any bromide compound is a thermolabile molecular bromine precursor, he “heavily” based his own analysis on a *Niksa* paper that post-dates the claimed invention by 8 years. D.I. # 108, Def. PFF ¶¶ 332, 337, 354. Fry's approach,

under which a POSA would need to rely on measurements, or modeling, or experimental results such as those reported in the *Niksa* reference (but not available at the time of the Patent), undercuts Plaintiffs' assertion that the factors that determine the behavior of a bromide compound were known and predictable to a POSA in connection with coal-fired combustors as of 2002.

Plaintiffs' attempts to introduce the unspoken "coal-fired power plant" limitation into the claims do not cure the problems that Fry introduced into the "thermolabile molecular bromine precursor" calculus because they ignore the variability even within coal-fired power plants. Fry testified that there at least five kinds of coal-fired (or coal-burning) power plants: wall-fired, tangential-fired, cyclone, circulating fluid bed, and arch-fired. D.I. # 136, Pl. Resp. to Def. PFF ¶ 101. He testified that, although wall-fired plants are similar to tangential-fired coal-fired power plants, circulating fluid bed power plants are not, and that "it would be a big mistake to use [*Niksa*] for a circulating fluidized bed boiler." D.I. # 71, Fry Dep. 156:5–157:4; D.I. # 108, Def. PFF ¶ 114.

Thus, under Fry's testimony, a POSA considering whether CaBr_2 in a circulating fluidized bed boiler reacts according to the claimed patent scheme would not be able to rely on *Niksa*, but would need to find another modeling study or perform experimental measurements. In addition, coal-fired power plants come in dramatically different sizes and scales, and Fry also testified that these factors would inform whether a bromide compound is a thermolabile molecular bromine precursor. D.I. # 108, Def. PFF ¶ 332; D.I. # 35-15, *Steam Generation: An Overview*, in *STEAM: ITS GENERATION AND USE* (Steven C. Shultz and John B. Kotto eds., 40th ed. 1992), at 1-1. More to the point, a

POSA would need a very good crystal ball to bring *Niksa* into the analysis, as that reference lay far in the future from when the patent application was filed.

Finally, after arguing that the behavior of bromide compounds in a prior art system such as *Julien* is unpredictable, but that there was no need to describe the behavior of such compounds in the Patent, Plaintiffs zag once again to argue that their behavior in the accused plants is predictable. *See* D.I. # 135, Pl. Opp. Br. 218–19. For this feat, Plaintiffs abandon their own expert and turn to Defendants’ expert witness, Wilcox. *See id.* That maneuver is disingenuous. Wilcox agrees with the patent owner’s statements to the PTAB that CaBr_2 is a thermolabile molecular bromine precursor that “will decompose to form HBr which in turn will form Br_2 which in turn will oxidize elemental mercury to HgBr_2 ” in coal combustion systems, including *Julien*. D.I. # 108, Def. PFF ¶ 247. Plaintiffs cannot cite Wilcox’s opinion for the accused plants, while discarding her opinions on *Julien*. Wilcox’s opinion is and has been consistent. It is Fry who, after the Patent emerged from reexamination, now opines that that CaBr_2 behaves that way only in the accused system but who sticks his head in the sand regarding the *Julien* prior art reference.

In summary, to avoid *Julien*, Fry and the Plaintiffs have posited that the behavior of CaBr_2 and other bromide compounds depends on an absurd number of factors and a POSA must evaluate all of them to determine if that bromide compound is a thermolabile molecular bromine precursor. D.I. # 108, Def. PFF ¶¶ 332, 334. In doing so, Plaintiffs contradict the basis for the PTAB’s findings that the invention is known and predictable.

Plaintiffs cannot have it both ways. If Fry’s opinion is credited, the claims of the ’692 Patent lack written description, as there are no blaze marks to indicate to a POSA

how to choose or identify a bromide compound that is a thermolabile molecular bromine precursor, and no guide to how to figure out whether a bromide compound will proceed through what the Plaintiffs characterize as steps 3 through 5 (formation of molecular bromine, reaction of molecular bromine with elemental mercury to form mercuric bromide, and adsorption of mercuric bromide) of the claimed invention. *See, e.g., Bos. Sci. Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1364 (Fed. Cir. 2011) (holding patent claims lacked adequate written description where there was no information suggesting how a POSA would determine which members of a chemical species would achieve the claimed results); *Univ. Of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 926 (Fed. Cir. 2004) (“[T]he inventor cannot lay claim to that subject matter unless he can provide a description of the compound sufficient to distinguish infringing compounds from non-infringing compounds, or infringing methods from non-infringing methods.”). And that is the case even if the teachings are limited to coal combustors that are coal-fired power plants.

That same set of Fry opinions renders claims of the '692 Patent invalid for lack of enablement, as determining whether a bromide compound is a “thermolabile molecular bromine precursor” would require measurement of each species in the reaction scheme, or preparation of a model that considers Fry’s long list of interacting factors. Indeed, even if Plaintiffs are correct that the claimed method is enabled for certain types of coal-fired power plants, that is insufficient to enable the method for the full scope of coal-fired power plants, or all types of coal combustion systems. *See, e.g., Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (To satisfy the enablement requirement, “the specification of the patent must teach those skilled in the art how to

make and use the full scope of the claimed invention without undue experimentation.”). It hardly needs expert opinion to establish that needing to consider Fry’s ten-plus interacting factors for any particular bromide compound for a particular coal combustion system, and to do so to evaluate whether the compound reacts as set forth in the multiple steps of Plaintiffs’ reaction scheme, would require substantial and undue experimentations. *See* D.I. # 108, Def. PFF ¶ 334 (D.I. # 77, Third Wilcox Report ¶¶ 6–13).

For the reasons set forth above and in Defendants’ opening brief, D.I. # 107, Def. Op. Br. 110–15, if the Court accepts Plaintiffs’ litigation-based contentions that calcium bromide is not a “thermolabile molecular bromine precursor” unless Fry’s ten-plus factor-test is satisfied, the Asserted Claims should be invalidated under 35 U.S.C. § 112.

2. The Asserted Claims Also Fail for Lack of Written Description if the Claims Are Construed to Cover Pre-Treatment and Injection Into the Combustion Zone.

Defendants’ opening brief seeks summary judgment that if the Asserted Claims of the ’692 Patent are construed to include pre-treatment or injecting thermolabile molecular bromine precursors into the combustion zone of a furnace, they are invalid under 35 U.S.C. § 112 for lack of written description. *See* D.I. # 107, Def. Op. Br. 115–19. Defendants provided undisputed evidence that POSAs at the time of the invention understood that there were three methods for introducing chemicals into coal-fired power plant systems; that one of those methods was “injecting into the flue gas”; and that a POSA reading the ’692 Patent would understand the invention to involve just that one method. *Id.* Accordingly, the ’692 Patent’s written description does not include pretreatment or injecting into the combustion zone.

Plaintiffs’ opposition brief advances four brief arguments as to why summary judgment should be denied on this ground. Each is without merit.

First, Plaintiffs argue that written description should not be decided on summary judgment because a patent’s compliance with the written description requirement is a question of fact. *See* D.I. # 135, Pl. Opp. Br. 220–21. Where the undisputed material facts compel the conclusion that there is no written description, however, summary judgment is appropriate. *See* Fed. R. Civ. P. 56 (e)(3); *Bos. Sci. Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1369 (Fed. Cir. 2011) (affirming the district court’s decision granting summary judgment for lack of written description). And as explained in Defendants’ opening brief, the undisputed material facts here establish that there is no written description of “pretreating” or “injecting into the combustion zone.”

Second, Plaintiffs suggest that they have raised a specific question of fact as to whether “injecting into the combustion zone” is disclosed in the ’692 Patent. They cite the opinion of their expert witness, Fry, regarding one sentence in the patent suggesting that a POSA should try varying the dose, concentration, or droplet size of the chemical used. *See* D.I. # 135, Pl. Opp. Br. 225–26 (“Dr. Fry has explained that . . . ‘it primarily is the case that factors such as concentration and dosing levels are varied when a different injection site is being considered (for example, injecting into the combustion zone flue gas with the coal directly versus injecting the additive itself in the upper furnace.’); citing D.I. # 108, Def. PFF ¶ 416.

That unsupported opinion, however, does not support a conclusion that there is written description. The opinion (not the described portion of the ’692 Patent’s specification) refers only to varying the “injection site”—not switching methods of

introducing the chemical. *See id.* It refers to a different site “being considered”—not that a different site was *taught*. *See id.* Moreover, the opinion actually conflicts with the cited statement in the Specification. The referenced portion of the Specification describes varying “droplet size during injection into flue gas.” D.I. # 35-1, ’692 Patent, at 6:41-42. That plainly *cannot* refer to pretreating coal, since even Plaintiffs do not contend that solid coal is “flue gas.” Pretreating coal is a different method for introducing chemicals into a system, not “a different injection site [] being considered.” Accordingly, Fry’s unreferenced and unsupported “opinion” regarding that lone teaching of the Patent does not create a material fact as to whether the Patent discloses “pretreating” as part of the invention.

Third, faced with the undisputed facts that the ’692 Patent does not provide any specific discussion or example of pretreating coal, or of injecting into the combustion zone, *See* D.I. # 107, Def. Op. Br. 116–17, Plaintiffs pivot and suggest that Defendants are trying to limit the teachings of the ’692 Patent to one of its preferred embodiments. *See* D.I. # 135, Pl. Opp. Br. 223–24 (“The ’692 Patent explicitly describes in detail one example of where a thermolabile molecular bromine precursor might be injected according to the claims, but this certainly does not suggest that the scope of the invention is limited to this example.”).

Plaintiffs cite D.I. # 133, Pl. Supp. PFF ¶ 1188 for this proposition, which itself cites a portion of the Patent Specification stating: “According to the invention, there is provided a method of treating coal combustion flue gas, preferably that obtained after the ‘superheater’ section of a coal-fired plant, for example the economizer inlet.” And

Plaintiffs conclude that a POSA would “have no reason to conclude that the patent was limited to the preferred embodiment.” D.I. # 135, Pl. Opp. Br. 225.

This entire argument is a red herring. Defendants do not seek to limit the scope of the Patent to the preferred embodiment, either through claim construction (ironically, Plaintiffs incorrectly argue that Defendants seek to *exclude* the preferred embodiment from their construction) or through Section 112 arguments. They seek only to limit it to what it supports, or invalidate it for lack of support.

Fourth, Plaintiffs argue that a POSA would have regarded “injecting into flue gas” to be a method that encompasses the other two methods, such that disclosure of “injecting into flue gas” constitutes disclosure of the other two methods of introducing chemicals. *See* D.I. # 135, Pl. Opp. Br. 226. As explained in the discussion of claim construction, this argument is entirely without merit because the term “injecting into flue gas” does not include pretreating or injecting into the combustion zone.

These cases present a straightforward issue regarding the adequacy of the written description. The claim is directed to treatment of flue gas by “injecting . . . into said flue gas.” POSAs recognized three methods of introducing chemicals into coal-burning power plants, one of which was known as “injecting . . . into flue gas.” *See* D.I. # 108, Def. PFF ¶ 307. If the claim is construed so that “injecting . . . into flue gas” is deemed to be a general term that includes all three methods, the written description would fail. A POSA would not understand that the Patent’s use of the term “injecting . . . into flue gas,” with no mention or description of pretreatment or injection into the combustion zone, was meant to be generic and include those other two methods as well as the specific method known to the POSA as “injecting into the flue gas.” *See* D.I. # 108, Def. PFF ¶ 292.

VI. The Court Should Grant Summary Judgment on Defendants' Counterclaims.

Plaintiffs do not dispute that this Court has declaratory judgment jurisdiction over Defendants' counterclaims related to noninfringement and invalidity. *See* D.I. # 135, Pl. Opp. Br. 226. Accordingly, to the extent that the Court grants summary judgment dismissing Plaintiffs' infringement claims on the grounds of noninfringement and/or invalidity, the Court should also enter declarations in Defendants' favor on Counts 1 and 2 of their Counterclaims. *See* D.I. # 49, Answer to SAC at p. 55 (Prayer for Relief).

CONCLUSION

For the foregoing reasons, the Court should award summary judgment to Defendants and enter final judgment in their favor, as follows:

Because Plaintiffs admit that Ecolab Inc., Ecolab U.S.A. Inc., Nalco Holding Company, Nalco U.S. 2 Inc., and Mobotec AB LLC all do not have standing, *see* D.I. # 135, Pl. Opp. Br. 6–7, those Plaintiffs should all be dismissed with prejudice.

Because Nalco Company LLC also lacks standing, its claims should be dismissed with prejudice. Furthermore, because Nalco Company LLC was the sole original Plaintiff, these cases should be dismissed for lack of subject matter jurisdiction. *See* Arg. § I.

To the extent that these cases are not dismissed for lack of standing, Defendants are entitled to summary judgment on the following issues:

Defendants WPS, WPL, and MGE:

Under Defendants' proposed claim constructions, WPS, WPL, and MGE are entitled to summary judgment that:

- Use of Refined Coal does not infringe the '692 Patent (Arg. § III);

■ [REDACTED]
(Arg. § IV.D);

- Plaintiffs are equitably estopped from asserting the '692 Patent against them (Arg. § IV.E); and
- The claims of the '692 Patent are invalid for multiple reasons under 35 U.S.C. §§ 103 and 112 (Arg. §§ V.B, V.C).

Under Plaintiffs' proposed claim constructions, WPS, WPL, and MGE are entitled to summary judgment that:

- Defendants have an implied license to practice the '692 Patent (Arg. § IV.D);
- Plaintiffs are equitably estopped from asserting the '692 Patent against them (Arg. § IV.E);

■ [REDACTED]
[REDACTED] (Arg. § IV.F); and

- The claims of the '692 Patent are invalid for multiple reasons under 35 U.S.C. §§ 101, 102, 103, and 112 (Arg. §§ V.A; V.B; V.C).

Additionally, if any claims against WPS, WPL, and MGE are not dismissed, then regardless of the claim constructions adopted by the Court, WPS, WPL, and MGE are entitled to summary judgment that they do not willfully infringe the '692 Patent (Arg. § IV.C).

Defendants Arbor and Portage:

Under Defendants' proposed claim constructions, Arbor and Portage are entitled to summary judgment that

- The use of Refined Coal does not infringe the '692 Patent (Arg. § III);
- Arbor and Portage do not directly perform the accused method and do not jointly infringe the '692 Patent with power plant operators (Arg. § IV.A);

- Arbor and Portage do not indirectly infringe the '692 Patent (Arg. §§ IV.B);
- Defendants have an implied license to practice the '692 Patent (Arg. § IV.D);
- Plaintiffs are equitably estopped from asserting the '692 Patent against them (Arg. § IV.E); and
- The claims of the '692 Patent are invalid for multiple reasons under 35 U.S.C. §§ 103 and 112 (Arg. §§ V.B; V.C).

Under Plaintiffs' proposed claim constructions, Arbor and Portage are entitled to summary judgment that:

- Arbor and Portage do not directly infringe the '692 Patent and do not jointly infringe the '692 Patent with power plant operators (Arg. § IV.A);
- Arbor and Portage do not indirectly infringe the '692 Patent (Arg. §§ IV.B);
- Defendants have an implied license to practice the '692 Patent (Arg. § IV.D);
- Plaintiffs are equitably estopped from asserting the '692 Patent against them (Arg. § IV.E);
- [REDACTED] (Arg. § IV.F); and
- The claims of the '692 Patent are invalid for multiple reasons under 35 U.S.C. §§ 101, 102, 103, and 112 (Arg. §§ V.A; V.B; V.C).

Additionally, if any claims against Arbor and Portage are not dismissed, then regardless of the claim constructions adopted by the Court, Arbor and Portage are entitled to summary judgment that they do not willfully infringe the '692 Patent (Arg. § IV.C).

Finally, all Defendants are entitled to declaratory relief, including a declaration that: (a) "the use . . . of refined coal that has been prepared according to the Chem-Mod Solution[] does not infringe the '692 Patent;" (b) Defendants "do not infringe any claim

of the '692 Patent;" and (c) "each [asserted] claim of the '692 Patent is invalid and unenforceable."

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Respectfully submitted,

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